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ABSTRACT

The report, third in a series of annual publications, examines some of the difficulties and prospects in areas of social and economic progress and human development which developing countries face during the next decade. Distinguishing oil-importing from oil-exporting developing countries, the first part of the report presents global and regional projections and discusses international policy issues in energy, trade, and capital flows. The second part focuses on human development: education and training, health, nutrition, and fertility reduction. The report provides a brief discussion of human development problems and priorities in each of the major regions of the developing world. It gives particular attention, however, to the two regions in which absolute poverty is most serious: Sub-Saharan Africa, which combines the worst growth prospects with the lowest levels of literacy and life expectancy; and South Asia, which contains half of the world's poor. Human development is shown to be important not only in alleviating poverty directly, but also in increasing the incomes of the poor, and Gross National Product growth as well. The vital message is that some steps known to be morally right--primary education, for example--make good economic sense as well. (Author)

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World Development Report, 1980

Part I Adjustment and growth in the 1980s
Part II Poverty and human development
Annex World Development Indicators

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August 1980

A World Bank Publication Summary

World Development Report, 1980

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An overview of
WORLD DEVELOPMENT REPORT, 1980

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Developing countries start the decade facing two major challenges. First, they must try to continue their social and economic progress in a less supportive international environment than prevailed a decade—or even a year—ago. Second, they must tackle the plight of the 800 million people living in absolute poverty who have benefited much too little from past progress. World Development Report, 1980 *examines some of the difficulties and prospects in both areas, looking as far ahead as 2000, but paying particular attention to the next five to ten years.*

Background and focus of the *Report*

The first part of the Report *presents global and regional projections—distinguishing oil-importing from oil-exporting developing countries—and discusses international policy issues in energy, trade, and capital flows. The second focuses on human development—education and training, health, nutrition, and fertility reduction. The two parts of the* Report *are closely related: in the difficult economic conditions of the past six years, as in earlier years, most of the fastest-growing developing countries without oil have had well-educated populations. And better health and more education can help the poorest people climb out of their poverty.*

The economic outlook

World economic prospects have deteriorated. The real price of oil has risen 80 percent in two years (and is expected to rise further). The resulting large external payments imbalances revive questions about the international financial system's ability to recycle enough funds to maintain world trade and production. And for reasons only partly connected with higher oil prices—but intimately connected with inflation—the outlook for growth in the industrialized countries has worsened.

For developing countries as a whole, growth will be substantially below that forecast in last year's *Report*. Higher oil prices have improved the outlook for the fifth of the developing world's population who live in oil-exporting countries; their average GNP per person could grow at around 3.0 to 3.5 percent a year in the first half of the 1980s (Table 2.1). But for the four-fifths who live in oil-importing countries, the first half of the decade will see a slowdown. Their governments must take steps to reduce current account

Table 2.1 Summary of prospects for growth

(average annual percentage growth, 1977 prices)

Country group	Population 1980 (millions)	GNP per person, 1980 (1977 dollars)	Growth of GNP (High case) 1980-85	1985-90	Growth of GNP per person 1970-80	Low case 1980-85	Low case 1985-90	High case 1980-85	High case 1985-90
Low-income oil importers	1,133	168	4.1	4.6	0.9	1.0	1.3	1.7	2.4
Sub-Saharan Africa	141	186	3.1	3.8	0.2	−0.3	0.1	0.1	1.1
Middle-income oil importers	701	1,275	4.9	5.7	3.1	2.0	2.4	2.6	3.5
Oil exporters	456	753	6.3	5.9	3.5	3.0	3.0	3.5	3.4
Industrialized countries	671	7,599	3.3	4.0	2.4	2.5	2.5	2.8	3.5

Note: For more detail, see Table 2.8 and Table SA.1 in the statistical appendix to Part I.

deficits and to adapt to more expensive energy—and at a time when demand for their exports from industrialized countries has slackened. This could reduce their GNP growth to about 1.8 percent per person per year (the Low case projection in the *Report*). Prospects for the low-income oil importers would be particularly bleak in this scenario: income per person in low-income Sub-Saharan Africa would decline, and the number of people in absolute poverty in the developing world as a whole would increase.

This Low case (or an even worse outcome) could come about—but it need not. In the High case projection, the oil-importing developing countries would grow at about 2.4 percent per person a year in 1980–85, and by 1990 there would be 80 million fewer people in absolute poverty than in the Low case. This would require that developing countries adjust successfully, cutting their external deficits by raising exports rather than lowering imports,while increasing both investment and efficiency in resource use. It would also require strong support from the industrialized countries and capital-surplus oil exporters in stimulating demand for developing country exports, in recycling oil surpluses, and in providing aid.

The success of the adjustment by developing and other countries to the economic circumstances of the early 1980s not only will largely determine their growth during that period but also will affect the chances of an acceleration of growth in the second half of the decade. With recovery in the industrialized countries and in world trade and with continued sound domestic economic policies, the oil-importing countries could grow almost as rapidly (3.2 percent) as the oil exporters (3.4 percent) and faster than in the 1970s. Without it, the growth of the oil exporters would be almost half a percentage point lower and that of the oil-importing countries a full percentage point lower.

But even in the High case, the growth of income per person in the developing countries will not match that in the industrialized countries. Taking the steps needed not just to attain, but to exceed,

the High case is thus the development challenge of the decade. Some of these steps relate to the external environment in which developing countries must operate, others to their internal circumstances and policies.

External factors

• TRADE. The ability of developing countries to afford the imports they need for growth depends crucially on their exports to the industrialized countries, which currently constitute two-thirds of their market. The industrialized countries, even those determined to combat inflation by restraining growth, must minimize the effects their deceleration will have on the developing world. This means expanding the volume of imports, maintaining the relatively free trading opportunities that now exist for most products, and starting to lower the barriers against other goods of particular importance to developing countries, such as textiles, clothing, leather goods, electronics, steel, and some agricultural commodities. To do so would increase the localized pains of structural change in the developed countries. There are internal remedies for these pains, however, and liberalization will pay off in faster productivity growth and lower inflation, as well as in increased demand from the developing world for the exports of industrialized countries. The oil-exporting nations can also help to maintain the momentum of expansion by rapidly increasing their imports from developing countries.

• ENERGY. The developing countries that import oil have been hard hit by the price explosion of the past twelve months and can expect their energy costs to rise further in real terms. At the same time, modernization of their economies will increase demand for energy, so they face a continuing need to adapt to the rising cost of imported oil (Table 2.4). They will find this easier if oil-exporting countries can avoid supply disruptions and sharp price changes. More generally, the world economy will perform better if oil prices follow a smooth path: violent fluctuations play havoc with internal resource allocation and the external payments system. Reliable sup-

Table 2.4 Net imports of oil by oil-importing developing countries, 1975–90

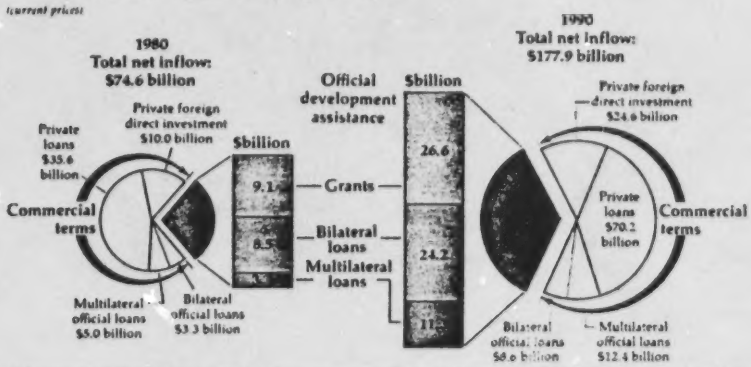
Oil imports for energy use only	*1975*	*1978*	*1980*	*1985*	*1990*
Volume (millions of barrels of oil per day)	4.9	5.8	5.3	5.8	6.9
Low-income countries	0.4	0.4	0.3	0.3	0.4
Middle-income countries	4.5	5.4	5.0	5.5	6.5
Cost (billions of dollars)	22.1	29.2	57.8	107.2	198.0
Low-income countries	1.8	2.1	3.3	6.0	11.1
Middle-income countries	20.3	27.1	54.5	101.2	186.9
Price per barrel c.i.f.					
Current dollars	12.33	13.70	29.80	50.30	78.30
Constant 1980 dollars	19.60	17.13	29.80	35.10	40.85

plies and smooth price changes will be more likely if developed countries improve their energy conservation and develop alternative sources.

• CAPITAL FLOWS. Current account imbalances will be large in the next few years, again requiring special efforts to recycle finance to oil-importing countries, especially in the developing world. There is a serious risk that reluctance or inability to finance large external deficits will lead to levels of trade, investment, and economic efficiency—hence, of growth—lower than anyone would wish. Even in the later years of the 1980s, when the severity of payments imbalances is expected to diminish, the growth of developing countries will continue to depend on inflows of foreign capital (Figure 2.5).

Figure 2.5 Net flows of medium- and long-term capital to developing countries, 1980 and 1990 (High case)

(current prices)



Note: Uses of medium- and long-term capital (billions of dollars) are:

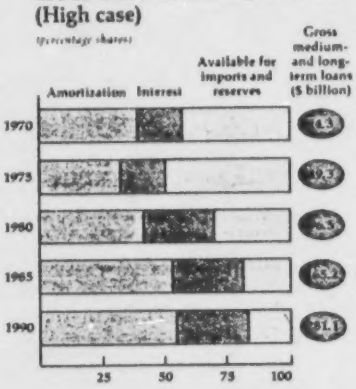
Use	*Oil importers* 1980	*Oil importers* 1990	*Oil exporters* 1980	*Oil exporters* 1990	*All developing countries* 1980	*All developing countries* 1990
Current account deficit before interest payments[a]	42.7	42.2	−11.1	30.2	31.6	72.4
Interest payments	18.3	62.0	8.8	17.5	27.2	79.4
Changes in reserves (net of changes in short-term debt)	−4.4	23.5	20.2	2.6	15.8	26.1
Total finance required	56.6	127.7	18.0	50.2	74.6	177.9

a. Defined as net imports of goods and services (except interest) minus private (but not officials) transfers. See tables SA.6 and SA.7 in the statistical appendix to Part I.

For the low-income countries, which can borrow very little commercially, this means more aid. There is a real danger that the modest aid increases projected in the *Report* will not be achieved. In their own long-term interests, as well as those of the developing countries, both OECD and OPEC donors should make every effort to expand their aid relative to GNP, even in periods of domestic stringency. And they should concentrate their aid even more on low-income countries.

Commercial capital, mainly from banks but also from the bond market, private direct investment, and official sources, can help the middle-income countries. But commercial bank lending may be constrained by concern about capital adequacy and portfolio concentration. And some of the countries that have borrowed heavily in the past will need to be cautious about borrowing much more from private commercial sources. In addition, more of what is borrowed will have to be used for repayment of principal and interest on old debt (Figure 3.5).

Figure 3.5 Developing countries' use of borrowed funds, 1970–90 (High case)



Without additional financial assistance from other sources, the growth of developing countries will slow down. In particular, there is not enough long-term program (nonproject) finance to support the structural changes required in many countries. Some will benefit from the structural adjustment lending of the World Bank and assistance from the IMF; enlarged official flows of this sort, particularly from multilateral agencies, could and should play a larger role.

Internal factors

While powerfully influenced by the international environment, the progress of developing countries depends even more on their own policies and initiatives in several areas.

- TRADE AND ENERGY. In trade, the developing countries can use pricing and other policies to stimulate production of internationally traded goods, both exports and import substitutes. But they should recognize that bias toward import substitution reduces efficiency and discourages exports. With regard to energy, they, like the developed countries, can minimize the loss of real income caused by higher oil prices through conservation and greater domestic energy production.
- INVESTMENT AND PRODUCTION EFFICIENCY. In attracting (especially commercial) finance and in speeding development more generally, trade and energy strategies play an important role. So do other policies that increase investment, improve administration, raise agricultural productivity, and make better use of capital, labor, natural resources, and imports.
- HUMAN DEVELOPMENT. The internal factor on which this *Report* focuses is the human one: the role not only of education and train-

ing, but also of health and nutrition.[1] In addition to the important direct benefits that programs in these areas confer, there is another aspect, long-standing but often neglected: the role of human development as investment, contributing to growth. The importance of technical, professional, and managerial skills is well known. But a major finding of the *Report*—less well known but firmly established by research—is the importance of primary education, which affects the knowledge and attitudes of farmers and other workers. Adam Smith's observation that the prosperity of a nation is determined mainly "by the skill, dexterity and judgment with which its labor is generally applied" has lost none of its truth.

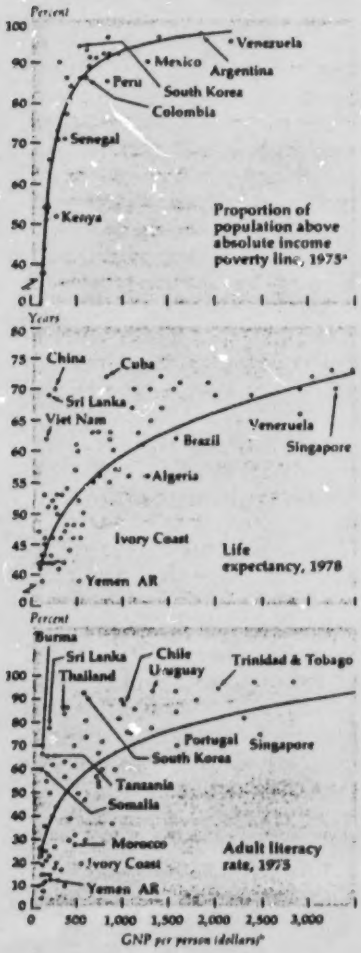
Investment in human resources can be ineffectual unless complemented by other productive inputs and by policies to ensure that resources are efficiently used. Human development programs must also be carefully chosen and efficiently carried out. Despite these qualifications, there is strong evidence to support the commonsense proposition that human development can make a valuable contribution to growth.

Studies at the firm, farm, and project level have shown that better education, health, and nutrition can raise incomes and productivity and that the economic rate of return to investment in schooling is high, frequently well above that of physical investment. For primary schooling, the rates of return in a large group of countries average more than 20 percent. At the aggregate level, cross-country comparisons show that developing nations with higher literacy rates have grown faster, even when allowances are made for other influences on growth and for reverse causation—the effect of growth on literacy. This finding is reinforced by case-study and historical evidence.

• POPULATION. One important way in which human development contributes to raising average incomes, as well as to other social goals, is by reducing population growth. Reducing fertility is not an end in itself, but lower population growth in most developing countries tends to result in greater investment per person in physical capital and in human skills—and thus in faster growth. Better nutrition and health, by lowering infant mortality, are essential ingredients of fertility decline. So is education, especially of women, since it delays marriage, alters attitudes about family size, and makes modern contraception more acceptable. Increases in income themselves are a cause, as well as a consequence, of reduced fertility: people who are less poor have good reasons for wanting fewer children (including less need for their labor and for support in old age). And research has confirmed that family planning programs also are important in bringing about slower population growth.

1. Earlier editions of *World Development Report* have covered other aspects of development policy. In 1978 the central topic was the problems and prospects of low-income Asia and Sub-Saharan Africa. In 1979 industrialization, employment, and urbanization were the main issues addressed.

Figure 4.2 National income and national poverty



a. Absolute income poverty line is income of 43th percentile in India.
b. Refers to year specified in each section of figure, expressed in the prices of that year.

Poverty and human development

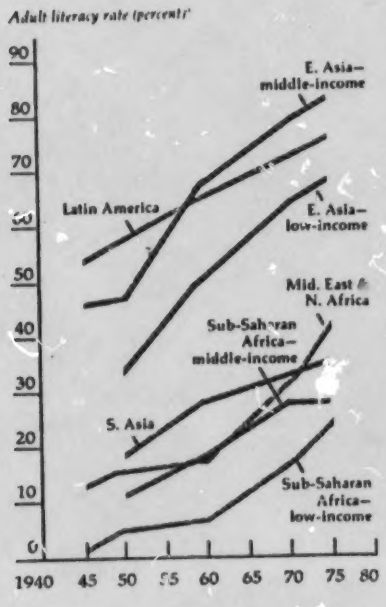
Human development can thus assist growth. But the *Report* stresses even more its potential contribution to reducing absolute poverty.

• GROWTH AND POVERTY REDUCTION. Growth is vital to reducing all aspects of absolute poverty—malnutrition, illiteracy, and ill health, as well as low income—especially in the poorest countries (Figure 4.2). But growth unaccompanied by other measures may neither boost the incomes of the poor much nor lead to much progress on nonincome aspects of poverty. On both counts, human development programs have a part to play.

• RAISING THE INCOMES OF THE POOR. The *Report* discusses a wide range of policies, many of which positively reinforce growth, that can help raise the incomes of the poor. Support of agriculture, land and tenure reform, policies to raise the demand for labor, and various kinds of research are four important areas considered. Human development is an essential complement. It accelerates the spread of new techniques to small farms and increases the opportunities of the poor for employment in the modern sector. And because fertility and family size are reduced, the earnings of adults do not have to be spread so thinly among children and other dependents.

• NONINCOME ASPECTS OF POVERTY. The worst aspects of absolute poverty include not only low income, but also malnutrition, frequent child death, disease, and ignorance. All can be helped by human development programs. Less obviously, there is a complex interdependence between the different facets of human develop-

Figure 7.2 Literacy, by region, 1945–75



a. Trends before 1960 are approximate.

ment—as there is between human development and increases in income. Health, nutrition, education, and fertility all affect each other. Most striking, partly because they are least expected, are the powerful effects that education, especially female education, has on fertility, child health, and nutrition. As this suggests, human development is a circular process, one which can be vicious or virtuous, according to circumstances and policies. And it has its own momentum: what is done (or not done) today powerfully influences what can be done a decade or more ahead (Figure 7.2).

• PRACTICAL ASPECTS OF HUMAN DEVELOPMENT. Human development is easier said than done. But much has been learned about the comparative efficacy of different policies and programs. In nutrition, for example, there is a growing agreement that the central issue is not improving the balance between calories and protein but increasing the amount of staple foods the poor can afford; this involves raising their incomes, stimulating production of these foods, and in some cases targeted subsidies. In health the vital role of primary care, together with schooling and control of mass diseases, is now generally acknowledged. In fertility there is better understanding both of how to implement family planning programs and of how such programs interact with socioeconomic and cultural conditions. In education more importance is now attached to its behavioral effects; and in raising educational standards, the significance of class size has been shown to be much less, and that of teaching materials much more, than was formerly believed.

Hard experience has also shown the difficulties of implementing human development and how to tackle them. Political obstacles such as urban bias, competition for resources, and the weak position of the poor often have to be overcome, but efforts to improve basic education, nutrition, and health have a universal political appeal. The financial constraint on programs often appears binding, but fre-

quently there are unexploited ways of cutting costs and harnessing additional resources. Human development programs can also encounter serious administrative constraints; here it is important not only to improve administration but also to choose the most manageable mix of programs and to encourage local participation. More paradoxical, but equally vexing, is the gap between need and demand that can sometimes lead to underused schools and clinics or the underrepresentation of girls and women in human development programs. Experience suggests ways in which this gap can be narrowed—and in some cases bridged.

• TRADEOFFS AND CHOICES. Planners have to choose at the margin between human development and other activities and between different human development activities. The choices are not easy, nor should they be the same in all countries.

The economic payoff from human development eases the tradeoffs between growth and poverty reduction. But it does not eliminate them, which means that policy decisions will still be affected by the relative emphasis attached to increasing growth, raising the incomes of the poor, and attacking the nonincome aspects of poverty. And whatever the balance of objectives, the difficulty of quantifying costs and benefits often compounds the problems of deciding how large the human development budget should be and how it should be divided among education, health, nutrition, and family planning, as well as within each of these areas.

The way in which these dilemmas are resolved must vary according to the circumstances of each country. Political and social priorities are important; so are income levels and growth prospects, as well as past progress in human development. In considering human development and other steps to reduce poverty, low-income countries, for example, must perforce put strong emphasis on economic returns.

The *Report* provides a brief discussion of human development problems and priorities in each of the major regions of the developing world. It gives particular attention, however, to the two regions in which absolute poverty is most serious: Sub-Saharan Africa, which combines the worst growth prospects with the lowest levels of literacy and life expectancy; and South Asia, which contains half of the world's poor.

Nothing can make widespread absolute poverty melt away overnight. And human development at best can do only part of the job. Without effective policies on other fronts, and without active and enlightened support from the rest of the world, progress will be agonizingly slow. But these other policies will not be sufficient. The most valuable resource any country has is its people—the means and the end of economic advance.

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Foreword

This third *World Development Report* is published at a time of difficulty and uncertainty for the world economy—particularly for the developing countries. They must adjust to external payments imbalances, higher energy prices and slower growth in world trade. That adjustment will slow their growth for at least the next few years. There is much that they themselves can do to ease the slowdown and to speed the expected subsequent recovery. But the burden of adjustment must be shared: the industrialized and centrally planned countries and the principal oil exporters also have a major role to play.

The first part of this *Report* is primarily about the economic policy choices facing both developing and richer countries and about the implications of these choices for growth. The outlook for growth that it discusses is a cause for deep concern—particularly for low-income countries and, among them, for the countries of Sub-Saharan Africa. More generosity and initiative in the provision of concessional aid by richer countries is urgently needed.

It is vital, moreover, that successful adjustment should not unduly sacrifice either the current living standards of the poor or the measures needed now to reduce poverty in the future. Growth is vital for poverty reduction, but it is not enough. The second part of the *Report* reviews other ways to reduce poverty, focusing on human development, an important complement to the approaches to poverty alleviation emphasized in the two previous *World Development Reports*.

Human development—education and training, better health and nutrition, and fertility reduction—is shown to be important not only in alleviating poverty directly, but also in increasing the incomes of the poor, and GNP growth as well. The vital message is that some steps we all have long known to be morally right—primary education, for example—make good economic sense as well.

The laudable objectives of human development, though, are far from easy to achieve. Nor are they without cost. The *Report* draws on years of World Bank experience—in the analysis of projects, sectors and national economies, and in research—to examine the causes and effects of progress in human development and what it takes to implement successful programs in this area.

While there is now increasing recognition that growth does not obviate the need for human development and other steps to reduce poverty, it must be stressed that the converse is true as well—direct steps to reduce poverty do not obviate the need for growth. This *Report* emphasizes that the direct attack on poverty, if it is ultimately to be successful, must be combined with measures to ensure that the economies of the developing countries continue to expand. The active support of the richer nations is required to assist this process through the provision of capital and technical knowledge and through the opening of their markets to developing-country exports. There is a real risk that the domestic economic problems of these richer countries will cause them to give inadequate attention to the immense problems of the developing world, and to the hardships that narrow or short-sighted policies—in energy, trade and financial assistance—can inflict.

This *Report* reflects the work of many of my colleagues in the World Bank. The judgments expressed do not necessarily reflect the views of our Board of Directors or the governments they represent. As in previous years, the *Report* includes the World Development Indicators, which provides tables of social and economic data for more than 100 countries.

Robert S. McNamara

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This report was prepared by a team led by Paul Isenman and comprising Nicholas Hope, Timothy King, Peter Knight, Akbar Noman, Rupert Pennant-Rea and Adrian Wood. The Economic Analysis and Projections Department prepared the data and projections used in Chapter 2 and in the World Development Indicators. The authors would like to acknowledge the substantial help received from many contributors, reviewers and support staff. The work was carried out under the general direction of Bevan Waide and Hollis Chenery.

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Definitions

Country groups in the analytical framework of this *Report* are as follows:

- *Developing countries* are divided, on the basis of 1978 gross national product (GNP) per person, into: *low-income countries*, with a GNP per person of US$360 and below; and *middle-income countries*, with a GNP per person above US$360. The countries in each group are shown in the tables of the World Development Indicators beginning on page 105.
- *Oil-exporting developing countries* comprise Algeria, Angola, Bahrain, Bolivia, Brunei, Congo, Ecuador, Egypt, Gabon, Indonesia, Malaysia, Mexico, Nigeria, Oman, Syria, Trinidad and Tobago, Tunisia, Venezuela and Zaire.
- *Capital-surplus oil exporters* comprise Iran, Iraq, Kuwait, Libya, Qatar, Saudi Arabia and United Arab Emirates.
- *Oil-importing developing countries* comprise developing countries not classified as oil-exporting developing countries or capital-surplus oil exporters.
- *Industrialized countries* are the members of the Organisation for Economic Cooperation and Development, apart from Greece, Portugal, Spain and Turkey, which are included among the middle-income developing countries.
- *Centrally planned economies* comprise Albania, Bulgaria, China, Cuba, Czechoslovakia, the German Democratic Republic, Hungary, the Democratic Republic of Korea, Mongolia, Poland, Romania and the USSR.

Organisation for Economic Cooperation and Development (OECD) members are Australia, Austria, Belgium, Canada, Denmark, Finland, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

The OECD Development Assistance Committee (DAC) comprises Australia, Austria, Belgium, Canada, Denmark, Finland, France, the Federal Republic of Germany, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, the United States and the Commission of the European Community.

The Organization of Petroleum Exporting Countries (OPEC) comprises Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela.

Economic and demographic terms are defined in the technical notes to the World Development Indicators on pages 158 through 165.

Billion is 1,000 million.

Tonnes are metric tons (1,000 kilograms).

Growth rates are in real terms unless otherwise stated.

Symbols used in the text tables are as follows:

.. Not available.
(.) Less than half the unit shown.
n.a. Not applicable.

1 Introduction

Developing countries start the decade facing two major challenges. First, they must strive to continue their social and economic development in an international climate that looks less helpful than it did a decade—or even a year—ago. Second, they must tackle the plight of the 800 million people living in absolute poverty, who have benefited much too little from past progress. This *Report* examines some of the difficulties and prospects in both areas, looking as far ahead as 2000, but paying particular attention to the next 5 to 10 years.

One of its central themes is the importance of people in development. Adam Smith's observation that the prosperity of a nation is determined mainly "by the skill, dexterity, and judgment with which its labor is generally applied" has lost none of its truth. In the difficult economic conditions of the past six years, as in earlier years, most of the fastest-growing developing countries without oil have had well-educated populations. Better health and more education can also help the poorest people climb out of their poverty.

The economic outlook

As in the two previous *World Development Reports*, economic projections for the developing countries have been carried out, drawing on the World Bank's analysis of what determines country and regional growth. These projections are intended to illustrate the likely outcome of different policies, rather than to provide precise forecasts. Two sets of projections are presented in Chapter 2, based on differing growth rates in the industrial world and policy responses in developing countries. This year the analysis has been extended to provide separate estimates for oil-importing and oil-exporting developing countries, as well as by region and income level.

The analysis indicates that world economic growth will be sluggish during the next few years, as oil-importing countries reduce their current account deficits and adapt to higher energy costs. But the policies adopted during the adjustment period will have some effect on growth then—and even more on the recovery expected after 1985.

International finance will play a crucial role in the 1980s: unless the developing (and other oil-importing) countries can fund their large projected balance-of-payments deficits, output and growth will be seriously affected. The domestic policies of developing countries will also be crucial: the more efficiently they use their imports, their investments, and their energy supplies, and the more they increase their saving and investment, the faster will be their growth. The fate of poor people in developing countries will likewise be decided largely by domestic opportunities and policies.

None of this, though, detracts from the importance of the role of industrialized countries. Chapter 3 examines three of the economic links that bind the world together—trade, energy and capital flows—and analyzes the fundamental issues in these areas, issues that must be resolved chiefly by the industrialized countries. Because they take about 65 percent of developing country exports, their growth rates and trade policies largely determine how much the developing countries can export. Because they account for more than half of world energy consumption, it is their conservation (or lack of it) that has the biggest impact. And most of the foreign capital that the developing countries need must come through the industrial world's banks or directly from its aid programs.

The role of human development

The past three decades have seen some impressive changes in the lives of people in the developing world. Average incomes have doubled. Average life expectancy has increased from 42 to 54 years. The proportion of adults who are literate has risen from about 30 percent to more than 50 percent. There has been a significant closing of the gap between industrialized and developing countries in life expectancy, literacy and primary school enrollment.

But there is still a long way to go. More than three-quarters of a

billion people have barely enough income to keep themselves alive from week to week. In the low-income countries people on average live 24 years less than they do in the industrialized countries. Some 600 million adults in developing countries are illiterate; a third of the primary school-age children (and nearly half of the girls) are not going to school.

This state of affairs is the starting point for Part II of the *Report*. Chapter 4 provides an overview of the various ways of attacking absolute poverty. The sources of growth, and policies to accelerate it, are examined, as are a wide range of measures—employment creation, land reform, schooling and so on—to raise the incomes specifically of poorer groups.

The rest of the *Report*, beginning with Chapter 5, singles out for closer examination one particular approach to poverty—human development—which epitomizes the familiar idea that poor people should be helped to help themselves. Better education, health and nutrition have long been considered important ends of development. They can also raise incomes and reduce fertility. Human development alone cannot overcome absolute poverty; but it is an essential complement to other steps to raise the productivity and incomes of the poor.

Chapter 5 provides a detailed look at education, health, nutrition and fertility. In each of these areas, it explains why the poor are deprived, and discusses the policies needed to overcome their deprivation. Special attention is given to the practical consensus that has recently emerged in several areas—including nutrition policy, primary health care and the role of family planning programs in reducing fertility. These different areas of human development influence each other; education is seen to be of central importance.

Chapters 6 and 7 draw conclusions from experience with human development programs. Chapter 6 shows how common financial, administrative and political constraints have been eased, and considers the role of foreign assistance. It also looks at ways of overcoming the cultural and economic barriers that stop poor people and their children—especially their daughters—from using human development services.

Chapter 7 focuses on broader planning issues—including the tradeoffs between growth and poverty reduction, and the allocation of resources between human development and other activities. It examines these and more specific human development issues as they apply to the different regions of the developing world. Chapter 8 contains a summary of the main arguments and conclusions of Parts I and II.

Part I Adjustment and growth in the 1980s

2 The outlook for developing countries

World economic prospects have deteriorated since last year's *World Development Report* was published.

- The real price of oil is likely to be at least 80 percent higher in 1980 than in 1978. As a result, capital-surplus oil-exporting nations will run current account surpluses of around $110 billion this year and oil-importing developing countries deficits of more than $60 billion.[1] This prospect revives questions about the international financial system's ability to recycle enough funds—to industrialized and developing countries—to maintain import levels and economic growth rates. Furthermore, the real price of energy can be expected to rise during the 1980s.
- For reasons only partly connected with higher oil prices, the outlook for growth in the industrialized countries and in world trade has worsened. The widespread resurgence of inflation in 1979 and 1980 has prompted governments to take strong deflationary measures; the industrial economies are expected to show only sluggish growth in 1980 and 1981. This inevitably slows their demand for developing countries' exports. The 1980s are thus off to a slower start than anticipated a year ago.

Given these two developments, the world faces the need to adjust—to payments imbalances and expensive energy—on a scale comparable to 1974–75. But the adjustment must take place at a time when the outlook for capital flows —especially aid for the poorest nations—is worse than before. This adjustment will be spread over several years; while it lasts, the world economy and most developing countries are likely to grow more slowly than in the 1970s. Provided the adjustment is successful, a significant recovery should be possible from the mid-1980s onward.

Higher oil prices have clearly improved the prospects of those developing countries with oil to export, where a fifth of the developing world's population lives. Their GNP per person grew 2.8 percent a year in the 1960s, compared with 3.1 percent for the oil-importing developing countries; but in the 1970s the oil exporters accelerated to an annual 3.5 percent growth, while the oil importers slowed to 2.7 percent. (The disparity was even larger when GNP is adjusted for changes in the purchasing power of their exports —see box overleaf). With much increased oil revenues, at least for the first half of the 1980s, the oil exporters' growth will be constrained more by the productivity of domestic investment than by their ability to borrow abroad.

Adjustment for oil-importing countries

All oil importers, developing and industrialized alike, face a central challenge over the next few years—to adjust to higher oil prices and sluggish world trade while minimizing their loss of growth. They are subject to a formidable constraint: their ability to import more has declined, both because imports (particularly of energy) are more expensive and because the export outlook has deteriorated. These countries went through a similar adjustment in 1974–78, and there is much that can be learned from this earlier experience.

The adjustment process has two stages. First, when there is a sudden increase in the cost of imports relative to export earnings, countries squeeze imports—and so growth slows sharply. Because too sharp a fall is disruptive, both economically and politically, countries accept large current account deficits and finance them from borrowing or aid. During the earlier adjustment period the current account deficit of oil-importing developing countries rose sharply —from 2.3 percent of their GNP in 1970 to 5.1 percent in 1975; from 1978 to 1980 it went from 2.3 percent to 3.9 percent. Growth is falling off in these countries in 1980, but less sharply than in 1975 (see Figure 2.1).

The second stage is to reduce these current account deficits to levels that can be financed over the medium term. At the same time output and trade must be restructured to meet the new circumstances. This structural change requires heavy investment. New

1. See page viii for definitions of country categories.

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GNP and trade prices

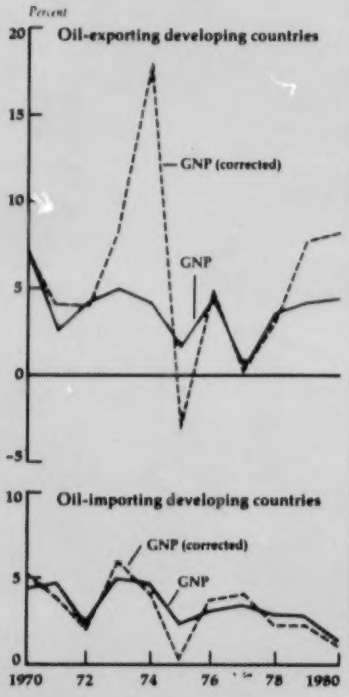
When a country's terms of trade shift substantially, changes in national product in constant prices do not accurately reflect changes in its purchasing power. The volume of imports that can be bought with a given volume of exports will rise if the terms of trade improve, fall if they deteriorate. There is no generally accepted way of measuring these changes in purchasing power; but a rough measure is obtained if export earnings are expressed in terms of the imports that they will buy—and any gain or loss is added to GNP.

Among the developing countries, the oil exporters and oil importers provide a vivid example of the difference such an adjustment can make to the apparent benefits of GNP growth. In 1974, the year oil prices rose most sharply, the oil exporters' output (as measured by their GNP per person in constant prices) rose 4.4 percent; but their "corrected" GNP rose 18 percent (see figure). That was exceptional: gains and losses from terms-of-trade changes are typically much smaller. But for the 1970s, the adjusted annual average GNP growth of 11 major oil-exporting developing countries was 2.4 percentage points higher than for 25 major oil importers, compared with 0.2 percentage points if the adjustment is not made.

Terms-of-trade effects are caused by a variety of factors: with the correction, the GNP of oil importers grew significantly more slowly than without it—in 1971, for example, long before oil prices rose. The reason was that commodity prices were depressed; two years later they were booming, and the correction augmented the growth rate.

Terms-of-trade effects on growth of GNP per person, 1970–80

(1977 prices)



energy sources must be developed and energy conserved, and in industrialized and developing countries declining or inefficient industries have to be replaced by competitive ones. So growth can pick up during the second stage, but it is still slowed by the continuing need for adjustment.

Slower growth compounds the political difficulties that can arise when governments pass on world price increases to consumers, particularly to politically powerful urban consumers, or cut back on public services. No less important, governments are concerned that rapid increases in the price of basic imported goods can cause severe hardships for the poor. These constraints can prolong the adjustment period. And there is a need to strike a balance between investments with a short-term payoff and those, such as infrastructure or education, which are vital for longer-term growth.

Judged against initial pessimism about their ability to adjust, the developing countries generally confounded expectations in 1974–78. In 1974 and 1975 their growth rates fell less than those of industrialized countries (Figure 2.1), helping to moderate the slowdown in world trade growth. Their adjustment was helped by substantial increases in official aid and other capital and by borrowing a significant part of the oil producers' recycled surpluses. Nonetheless, the result of these efforts was slower growth: in 1975–78, GNP per person in the oil-importing developing countries grew 2.3 percent a year—above the 0.8 percent in the 1975 trough, but still well below the 3.7 percent average for 1965–73. And some countries experienced serious fiscal and external debt problems. The poorest African countries were the biggest cause for concern; their GNP per person grew 1.6 percent a year in the 1960s, but only 0.2 percent in the 1970s. On average their people are as badly off at the end of the decade as they were at the beginning.

The oil-importing developing countries that coped best during the earlier adjustment period were:

- Those that reacted to the decline in their import capacity by a temporary slowdown in growth accompanied by a drive to expand exports. Import capacity (and hence output growth) was restored quickly. Most of these countries had grown rapidly and diversified their exports during the previous decade; a good example is Singapore.
- Those that, while maintaining import growth by foreign borrowing, used the borrowed funds mainly to sustain high levels of productive investment—including Brazil and South Korea.
- Those that benefited from good harvests resulting from improved agricultural policies and favorable weather (such as India) or rising migrant remittances (such as the Yemen Arab Republic).

Several of the developing countries that improved their economic policies and did well during six difficult years had previous records of slow growth and poor economic management: for them, improved domestic efficiency went a long way toward offsetting the effects

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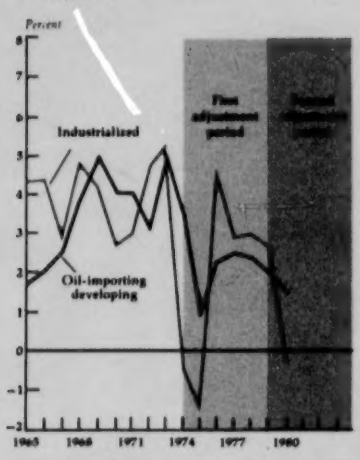
Figure 2.1 Growth of GNP per person: industrialized and oil-importing developing countries, 1965–80

(1977 prices)



of a deterioration in the world economy. And they are now much better placed to weather the current slowdown and recover in the 1980s.

The 1970s have shown that success in adjustment should be measured not just by the volume of recycling, or the share going to developing countries, or the reduction of developing-country deficits to affordable levels.These are all important, but they must be viewed in the context of the growth that the developing countries achieve. A key factor in that growth is the performance of the industrialized countries; in the 1970s their erratic growth and incomplete adjustment had a depressing effect on the oil-importing developing countries (Figure 2.1).

Adjustment in the 1980s

As in the 1970s, the adjustment required can be seen from both global and domestic viewpoints. Globally, the oil importers' deficits are the counterpart of the surpluses of the capital-surplus oil exporters. Although each oil-importing country has powerful reasons for wanting to expand exports and restrain imports, they cannot all succeed simultaneously while the oil surpluses persist. The attempt to do so through uncoordinated domestic deflationary policies (especially if augmented by protectionism) will slow world economic growth even more. Because of their weight in the world economy, the industrialized countries in particular should maintain import growth—recognizing that this may involve large payments deficits.

On the domestic front, adjustment in the 1980s should benefit from the knowledge gained from experience. Moreover, it is now apparent that higher real energy prices are here to stay; so there is more incentive to take the difficult steps necessary to conserve energy and to develop domestic energy production. A number of countries that were large oil importers in 1973 are now projected to come close to self-sufficiency in the 1980s (for example, Pakistan and Colombia) or be major exporters (such as Mexico).

Unfortunately, however, there are several reasons why this adjustment may prove more difficult for many countries than the 1974–78 adjustment was.

- Some developing countries did not adapt effectively during the 1970s, and ended up with high debt-service obligations or slower growth (and in some cases both). In addition, many countries now have less room than before to squeeze either energy consumption or imports without reducing growth. In some countries (India and Tanzania, for example) shortages of fuel have already impeded the transport of food and other key commodities.
- Oil surpluses could stay at a high level for longer—both because more conservative development programs among the oil producers may boost imports less rapidly than in the 1970s, and because the real price of oil is likely to rise, not fall as it did in 1974–78.
- The prospects for capital flows are less favorable. Official finance—including aid—which played an important role in 1974–75 is not yet responding to developing countries' needs; commercial borrowing is likely to cost more; and both borrowers and lenders are likely to be more cautious. In addition, more of what is borrowed will have to be used for repayments of principal and interest on old debt (see page 25).
- The industrialized economies face more serious difficulties than in the mid-1970s, when adjustment tended to be viewed as a phase from which they would quickly recover. But the growth of the 1960s and early 1970s has not been regained; and although their slowdown may not be as marked in 1980–81 as in 1974–75, no quick recovery can be expected.

The current economic malaise of the industrialized countries results from much more than higher energy prices. Inflation in some of them is running several percentage points above its peak in 1974; they have plainly decided that it must come down and stay down before rapid growth can be resumed, and that deflationary measures are the best way of achieving this. There are question marks, too, over their long-term growth potential. Productivity growth has slowed sharply: on average it increased 3.9 percent a year in 1963–73, but only 1.7 percent a year since 1973. This stems from a complex of factors—among them, incomplete adjustment to higher energy costs, sluggish investment and a mismatch of skills in the labor market—that cannot be rectified quickly or easily.

Overall, even with a well-directed policy response by all countries,

Table 2.1 Summary of prospects for growth
(average annual percentage growth, 1977 prices)

Country group	Population 1980 (millions)	GNP per person, 1980 (1977 dollars)	Growth of GNP (High case)		Growth of GNP per person				
						Low case		High case	
			1980–85	1985–90	1970–80	1980–85	1985–90	1980–85	1985–90
Low-income oil importers	1,133	168	4.1	4.6	0.9	1.0	1.3	1.7	2.4
Sub-Saharan Africa	141	186	3.1	3.8	0.2	−0.3	0.1	0.1	1.1
Middle-income oil importers	701	1,275	4.9	5.7	3.1	2.0	2.4	2.6	3.5
Oil exporters	456	753	6.3	5.9	3.5	3.0	3.0	3.5	3.4
Industrialized countries	671	7,599	3.3	4.0	2.4	2.5	2.5	2.8	3.5

Note: For more detail, see Table 2.8 and Table SA.1 in the statistical appendix to Part I.

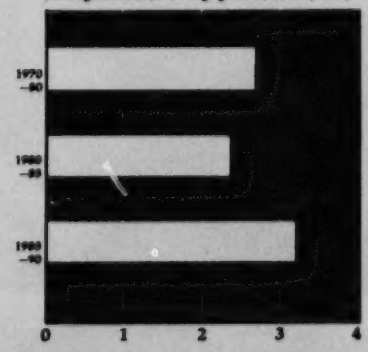
growth in the oil-importing developing countries is likely to be significantly slower in 1980–85 than in the 1970s—and still further below the average in the 1960s.

Key factors affecting growth: 1980–85 and 1985–90

To help analyze the outlook, two sets of illustrative projections have been prepared. Designated Low and High, they are based on alternative policy responses to current economic difficulties. Each scenario is internally consistent with respect to policies and outcomes. The Low case shows an unsuccessful adjustment in 1980–85; though payments imbalances are reduced, growth remains depressed, and inadequate foundations are laid for recovery after 1985. The High case represents a much more successful adjustment, with growth slowing less in 1980–85 and accelerating more thereafter (see Figure 2.2).

Figure 2.2 Developing countries' growth of GNP per person, 1970–90 (High case)

(average annual percentage growth, 1977 prices)



Because of the differences in growth rates between oil-importing and oil-exporting developing countries, estimates for them are shown separately (see Table 2.1). The projections of this *Report* are not directly comparable to those of last year's, but they represent a substantial fall in growth expectations for the oil importers over the next five years.[2]

The oil exporters have buoyant prospects throughout the decade (see Table 2.1). But the oil importers will grow more slowly in 1980–85 than in the 1970s, even in the High case; with a successful adjustment and a strong revival in world trade after 1985, their growth should accelerate in 1985–90. By contrast, their recovery would be weak in the Low case. Sub-Saharan Africa has the most disturbing outlook. Even in the High case, its growth in 1985–90 would be a meager 1 percent per person—far below the average for the oil importers; and in the Low case average incomes would actually be lower in 1990 than they were in 1980.

Whether the outcome will be closer to the High or the Low case will depend on the policies pursued by industrialized countries, the capital-surplus oil exporters and the developing countries themselves. At this early stage in the adjustment process, it is unclear how successful their policies will be in restoring growth, for the world as a whole or for developing countries. The estimates this year should therefore be treated with more than usual caution. But there are some disturbing signs that the seeds of the Low case are already being sown: on current prospects, aid for low-income countries is far from certain to meet the modest requirements of the High case, and some middle-income countries are experiencing both debt and political difficulties.

Thus, without a strong policy response during the adjustment period, the Low case is the likelier outcome. And a number of factors, including serious political instability, major problems in capital markets or a breakdown of world economic cooperation, could bring about a much worse outcome.

But the High case remains achievable—depending on policies in four key areas: the growth and structure of international trade; the changing pattern of energy

2. The projections of this *Report* differ from those of last year's for several reasons. For example, only two sets of projections have been prepared—a Low case, which is comparable to last year's Low case, and a High case, which is closer to last year's Base case than its High case. In addition, Iran and Iraq are now included among capital-surplus oil exporters; and improvements in data have led to revisions of some historical aggregates.

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production and consumption; investment and productivity in the developing countries; and the inflow of capital. (A broader view of the determinants of economic growth—including the effects of human resources—is discussed in Chapter 4.) In each area, the emphasis is on what is required to increase growth; policy prescriptions are discussed in Chapter 3.

International trade

With slow growth expected in the industrialized countries in 1980–81 and with much larger current account deficits for all the oil-importing countries, world trade growth will slow from the 5.5 percent a year it averaged in the 1970s. But if, as the High case assumes, the industrialized economies are able to average GNP growth of 3.3 percent a year in 1980–85—see Table 2.1—and if further protectionism is avoided, world trade could rise by an averge of 5.2 percent a year in 1980–85 (see Table 2.2). Thereafter, with the industrialized countries' GNP projected to grow 4.0 percent a year in 1985–90, it should accelerate. Exports of developing countries could expand at 6.4 percent a year in 1985–90, compared with 5.5 percent in 1980–85.

As with growth, the trade outlook differs sharply between oil exporters and oil importers—underlining the important effects of terms-of-trade changes. In the 1970s export volume for oil-exporting developing countries grew at about two-thirds the rate of that of the oil importers; but because the price of their exports rose so much faster, their import volume was able to grow twice as fast. For the capital-surplus oil exporters, the terms-of-trade benefits were even greater.

Although the terms of trade of the oil-importing developing countries are not projected to deteriorate markedly in the 1980s, exports will still have to grow faster than imports in 1980–85 to reduce current account deficits. But for low-income oil importers, and especially Sub-Saharan Africa, exports could grow more slowly in 1980–85 than in the 1970s—underlining their need for foreign assistance to maintain their import capacity. With a strong recovery of world trade in 1985–90, their export prospects would improve and export growth could exceed that of imports.

If the High case is achieved, the share of developing countries in world trade would increase from 20.1 percent in 1977 to 21.3 percent in 1990 (see Table 2.3). The structure of their trade could change more dramatically, with exports of manufactures growing about two and a half times faster than nonfuel primary exports. As a result, developing countries' exports of manufactured goods would rise from 24 percent of their total exports in 1978 to 39 percent in 1990 and from 10 percent to 14 percent of world manufacturing trade.

The biggest gains are likely to be in machinery and transport equipment (from 6 to 16 percent of developing country exports), in which Brazil, India and South Korea, for example, have become increasingly competitive in international markets. The developing countries' importance as markets for the industrial world would also increase: in 1978 they and the capital-surplus oil exporters already accounted for

Table 2.2 Growth of exports and imports, 1970–90 (High case)
(average annual percentage growth rates, 1977 prices)

	Exports[a]			Imports[a]		
Country group	*1970–80*	*1980–85*	*1985–90*	*1970–80*	*1980–85*	*1985–90*
Oil-importing developing countries	5.6	5.7	6.8	4.6	4.7	6.3
Low-income	2.6	0.9	3.7	0.1	2.1	2.8
Middle-income	5.9	6.1	7.0	5.2	4.9	6.5
Oil-exporting developing countries	3.5	4.6	4.5	8.6	7.6	6.3
All developing countries	5.1	5.5	6.4	5.4	5.4	6.3
Industrialized countries	6.0	5.4	5.8	4.8	4.3	5.3
Capital-surplus oil exporters	2.7	1.8	2.0	21.1	10.9	7.3
Centrally planned economies	6.6	5.1	5.2	8.1	5.8	5.2
World	5.6	5.2	5.7	5.8	5.2	5.7

a. Goods and nonfactor services except for centrally planned economies, for which net nonfactor services are included as net exports.

Table 2.3 Percentage shares in world exports of goods and nonfactor services (High case)
(1977 prices)

	Primary commodities		Fuels		Manufactures		Nonfactor services		Total	
Country groups	*1977*	*1990*	*1977*	*1990*	*1977*	*1990*	*1977*	*1990*	*1977*	*1990*
Developing countries	35.0	34.0	24.2	28.2	10.1	14.3	28.8	30.6	20.1	21.3
Industrialized countries	55.6	56.5	16.0	19.3	79.6	76.3	67.7	65.6	62.9	65.6
Other countries	9.4	9.5	59.8	52.5	10.3	9.4	3.5	3.8	17.0	13.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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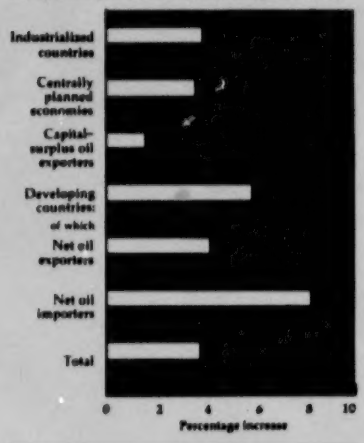
Figure 2.3 Energy production and consumption growth, by country group, 1980–90 (High case)

(average annual growth, million barrels of oil equivalent per day)



almost a third of North America's exports of manufactures, almost a half of Japan's and a fifth of Europe's.

Energy

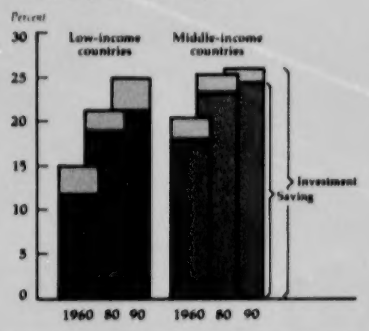
Although uncertainty inevitably surrounds the prospects for new energy discoveries, the supply of energy is likely to remain tight during the 1980s. World production of primary energy from all (commercial) sources is projected to increase 3.8 percent a year over the decade (see Figure 2.3)—about the same as the industrialized countries' GNP growth in the High case, but considerably below that of the developing and centrally planned economies. As a result, real energy prices can be expected to rise further—though the rise is likely to be moderated and the energy constraint on growth eased if the industrialized countries achieve progress in both energy conservation and production (Figure 2.3 and Table SA.2 in the statistical appendix to Part I). The working assumption is that real oil prices will on average rise 2 percent a year.

For the industrialized countries, net energy imports (mainly oil, plus gas and coal) are projected to remain at some 20 million barrels a day of oil equivalent (*mbdoe*) throughout the 1980s. Among the developing countries, the oil exporters are expected to increase their energy exports by a third; some of today's oil importers either will be net energy exporters at some stage during the decade, or will have greatly reduced their energy imports by 1990.

But most developing countries will continue to import much of their energy needs. For all oil-importing developing countries, the "energy gap" under the High case is likely to widen from 5.6 *mbdoe* in 1980 to 6.3 *mbdoe* in 1985 (see Table SA.2). By 1990 the gap would have increased to 7.5 *mbdoe*, even if the countries succeed (as projected) in more than doubling production and restraining consumption growth. Their bill for imported oil for energy use (that is, excluding oil for such things as fertilizer production) would rise in nominal terms from $29 billion in 1978 to some $107 billion in 1985 and about $200 billion in 1990 (Table 2.4). Without a rapid expansion of exports and substantial financial support from abroad, they could find their growth severely constrained by the cost of energy imports. Individual country analysis suggests that oil imports as a percentage of export earnings will rise substantially for many countries from 1980–85, particularly among the low-income countries.

Figure 2.4 Developing countries' savings and investment rates, 1960, 1980 and 1990

(percentage of GDP, current prices)



Investment and efficiency

Developing countries have raised their savings and investment rates considerably in the past 20 years (see Figure 2.4). Further increases—and, still more important, improvements in the productivity of existing and new investment—can make a major contribution to adjustment and growth, as the experience of the 1970s has shown. Previous *World Development Reports* have discussed the importance of efficiency and policies for promoting it; Part II of this *Report* considers another important element in efficiency—the human factor.

The 1970s have shown which

Table 2.4 Net imports of oil by oil-importing developing countries, 1975–90

Oil imports for energy use only	*1975*	*1978*	*1980*	*1985*	*1990*
Volume (millions of barrels of oil per day)	4.9	5.8	5.3	5.8	6.9
Low-income countries	0.4	0.4	0.3	0.3	0.4
Middle-income countries	4.5	5.4	5.0	5.5	6.5
Cost (billions of dollars)	22.1	29.2	57.8	107.2	198.0
Low-income countries	1.8	2.1	3.3	6.0	11.1
Middle-income countries	20.3	27.1	54.5	101.2	186.9
Price per barrel c.i.f.					
Current dollars	12.33	13.70	29.80	50.30	78.30
Constant 1980 dollars	19.60	17.13	29.80	35.10	40.85

measures can raise efficiency fairly rapidly. In agriculture, examples include balanced packages of irrigation, inputs of fertilizer and selected seeds, extension services and credit, and ensuring adequate producer prices. Efficient industrialization can be helped by policies that discourage undue capital intensity and do not protect domestic industry excessively. Many countries have learned from painful experience how to improve the efficiency of publicly owned enterprises and how to apply more rigorous economic criteria to project selection.

But even with greater efficiency, more investment would be needed to achieve the High case—especially in the low-income countries. They would have to raise their investment to more than 23 percent of output by 1985, and to 25 percent by 1990, matching the already high level of the middle-income countries. Some increases in savings rates are possible (see Table 2.5), although there are real limits to how far consumption in low-income countries can be restrained. But substantial increases in investment can be achieved only with more capital from abroad. For low-income Africa foreign resources will be required to finance about 40 percent of investment, and for low-income Asia 13 percent. By contrast, higher savings rates in the middle-income countries could reduce their dependence on foreign resources by 1990.

International capital flows

The analysis of trade, energy and domestic investment highlights the role that foreign capital must play in a successful adjustment by the developing countries. But the actual capital inflow will depend on both the needs of countries and on the likely availability and cost of capital from all sources (see discussion in Chapter 3).

Table 2.5 Developing countries' savings and investment rates, 1980–90 (High case)

(percentage of GDP, current prices)

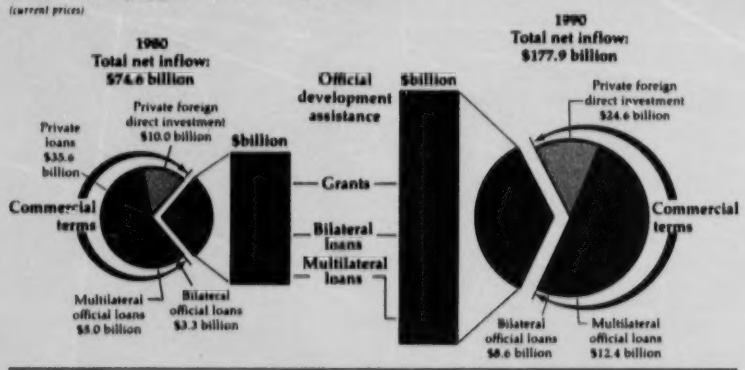
	Gross domestic investment			Gross domestic saving			Resource gap		
Country group	*1980*	*1985*	*1990*	*1980*	*1985*	*1990*	*1980*	*1985*	*1990*
Low-income countries	21.2	23.0	25.0	18.7	19.8	21.2	2.5	3.2	3.8
Africa	16.3	16.0	18.3	9.1	8.6	11.3	7.2	7.4	7.0
Asia	22.0	24.0	25.9	20.2	21.4	22.6	1.8	2.6	3.3
Middle-income countries	25.3	25.4	25.7	23.2	23.8	24.5	2.1	1.6	1.2
All developing countries	24.6	25.0	25.6	22.4	23.1	24.0	2.2	1.9	1.6

The projected pattern of net financing for all developing countries is shown in Figure 2.5. But the needs of developing countries for finance differ widely. Oil-exporting developing countries now look to be less dependent on foreign capital in the 1980s than was anticipated a year ago. Over the next five years, they can achieve High-case growth financed largely from their oil revenues. After running a current account deficit (before official transfers) of more than $10 billion a year in 1975–77, they could have a surplus of about $2 billion in 1980.

By the mid-1980s, however, the real value of oil export earnings is likely to be falling for some countries. If their imports are to rise to the level required for the High case, the oil exporters would have a current account deficit by 1985 of around $16 billion. To maintain their growth in the second half of the 1980s, they would need to borrow more heavily; their net private borrowing could rise from only $7 billion in 1985 to around $25 billion in 1990. Private capital would meet about two-thirds of their financing requirements in 1990 (see Table SA.6).

Figure 2.5 Net flows of medium- and long-term capital to developing countries, 1980 and 1990 (High case)

(current prices)



Note: Uses of medium- and long-term capital (billions of dollars) are:

	Oil importers		Oil exporters		All developing countries	
Use	*1980*	*1990*	*1980*	*1990*	*1980*	*1990*
Current account deficit before interest payments[a]	42.7	42.2	−11.1	30.2	31.6	72.4
Interest payments	18.3	62.0	8.8	17.5	27.2	79.4
Changes in reserves (net of changes in short-term debt)	−4.4	23.5	20.2	2.6	15.8	26.1
Total finance required	56.6	127.7	18.0	50.2	74.6	177.9

a. Defined as net imports of goods and services (except interest) minus private (but not official) transfers. See tables SA.6 and SA.7 in the statistical appendix to Part I.

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Table 2.6 Current account deficits of oil-importing developing countries, 1970–90 (High case)

Country group	Current account deficit[a]						
	1970	1973	1975	1978	1980	1985	1990
	Billions of dollars, current prices						
Low-income	1.2	2.3	5.4	5.7	10.0	18.6	32.0
Middle-income	7.1	4.4	34.2	21.4	51.0	59.7	72.2
Total	8.3	6.7	39.6	27.1	61.0	78.4	104.2
	Billions of dollars, 1977 prices						
Low-income	2.[illegible]	3.2	6.1	5.0	7.1	9.2	11.8
Middle-income	13.2	6.0	38.3	18.5	36.1	29.5	26.7
Total	15.4	9.2	44.4	23.5	43.2	38.7	38.5
	As percentage of GNP						
Low-income	1.6	2.2	3.8	2.7	3.6	3.8	3.9
Middle-income	2.5	0.9	5.3	2.2	4.0	2.6	1.8
Total	2.3	1.1	5.1	2.3	3.9	2.8	2.1

a. Excludes official transfers.

For oil-importing developing countries the outlook is very different. Although their current account deficit in 1980 is smaller as a percentage of GNP than it was in 1975, in constant prices it is roughly the same (see Table 2.6). The low-income countries in particular face serious financing problems. To achieve High-case growth of 1.7 percent per person a year in 1980–85, their current account deficits would have to rise to 3.8 percent of GNP by 1985 (the same as in 1975) and would rise further by 1990. Since the low-income oil importers have only limited access to commercial funds (other than some short-term borrowing and suppliers' credits), deficits of this size can be financed only if:

- Aid from DAC and OPEC members trebles in current prices over the decade.
- Support from the multilateral institutions is increased correspondingly.
- The share of the low-income countries in bilateral aid from the industrialized countries increases to around 50 percent from about 40 percent at present.

This requires only a marginal increase in the aid performance of the industrialized countries—from 0.34 percent of their GNP in 1979 to 0.35–0.36 percent of GNP in 1985, then staying at this level. Unfortunately, aid prospects are not encouraging (see Chapter 3)—and this has serious implications for low-income countries. For example, the Low-case assumption for DAC donors—lower GNP growth, aid falling to 0.30 percent of GNP by 1982, with 40 percent of bilateral aid to low-income countries—would account for 0.3 percentage points of the difference in average annual growth for low-income countries between the Low and High cases.

For the middle-income oil importers, bilateral official finance is not likely to be as freely available for funding current account deficits in 1980–81 as it was in 1974–75. And lending by the multilateral institutions at market or near-market terms will depend on increases in the capital that backs their bond issues.

As for private finance, some countries that have borrowed heavily in the past and already have high debt-service obligations will need to be cautious about further borrowing. Given the High-case outlook for their current accounts, the debt-service payments of middle-income oil importers will peak at around 29 percent of their exports of goods and services in 1985 (see Table 2.7).

In the High case, private finance (including direct investment) provides a slightly larger proportion of the middle-income oil importers' net financing requirement in 1985 than in 1990, though smaller than in 1980 (see Table SA.7). If the Low case comes about, developing countries' export growth would fall more than their import growth—and hence they would remain about as dependent on nonconcessional finance as in the High case. If the necessary finance could not be obtained—because of concern about creditworthiness, for example—growth could slip even lower than the Low case, and the number of countries in serious debt difficulties would increase.

The extraordinary expansion of private commercial lending to developing countries that took place in the 1970s is unlikely to be repeated during the current

Table 2.7 Debt-service ratios of developing countries, 1977–90[a] (High case)
(percent)

Country group	1977	1980	1985	1990
Oil-importing developing countries				
Low-income	10.1	9.2	11.3	11.5
Middle-income	19.8	25.7	28.6	22.1
Oil-exporting developing countries	16.0	15.4	13.5	12.9

a. Interest and amortization payments on debt divided by exports of goods and services. Figures are from individual country analysis of 25 major oil-importing developing countries and 11 major oil-exporting developing countries.

adjustment; but the increases projected for the High case are not implausibly high. In nominal terms, net private lending to all developing countries would rise only 3.2 percent a year in 1980–85. This would lower debt-service ratios for oil exporters and slow their increase for oil importers. The 11 percent (nominal) annual rise projected for net private lending in 1985–90 would stem largely from increased borrowing by the oil exporters. Indeed, if major borrowers do adjust successfully in 1980–85, by building up their export base and earning good returns on capital invested, private lending may well rise more than is projected.

Regional growth in the 1980s

Whether the Low or the High case is achieved, most of the past decade's disparities in growth rates between different groups of developing countries can be expected to continue in both halves of the 1980s (see Table 2.8). There are too few oil exporters to identify systematic differences by region and income group in their prospects; but the aggregate figures for the oil importers hide wide differences.

With strong economic management, continuing agricultural progress and more aid, growth per person in low-income Asian countries could be substantially higher in the 1980s than in the 1970s. But it would still be well below that of middle-income oil importers, and in the Low case it would not be much more than 1 percent a year for the decade. The situation for low-income Africa is worse. These countries face a desperately hard adjustment period—coming on top of the economic stagnation of the 1970s. Even under the comparatively optimistic assumptions of the High case, their growth would be negligible in 1980–85. The plight of these poor Asian and African countries—particularly the latter—deserves special attention from the international community.

As they adjust to less buoyant export prospects and higher energy costs, middle-income oil importers can also expect slower growth—from 3.1 percent per person a year in the 1970s to a range of 2.0–2.5 percent during the first half of the 1980s. It would take the favorable international environment and successful adjustment of the High case for growth in the second half of the 1980s to exceed the average of the 1970s (and match that of the 1960s).

The slowdown in 1980–85 would be most marked in Latin America and the Caribbean—from 3.5 percent in the 1970s to 2.2–2.6 percent in 1980–85. Even with a strong recovery after 1985, growth for the 1980s could still fall below that of the 1970s. In East Asia and the Pacific there would also be a slowdown in 1980–85, and these countries too would not repeat their extraordinary growth of the 1970s. But they have made continuing progress in raising savings and investment rates, in expanding exports and in reducing population growth. As a result, they are likely to continue to achieve faster growth per person than any other region.

Growth in the comparatively high-income countries of Southern Europe has been slowing, and the trend could continue in the 1980s, since these countries are very dependent on oil imports and on trade with Western Europe. Some will join the European Community during the 1980s; the terms of their entry and how rapidly they adapt to membership will have a marked effect on their growth.

Finally, for the middle-income oil importers of Sub-Saharan Africa and the Middle East and North Africa, the slow growth of the past two decades seems likely to continue into the 1980s.

Table 2.8 Growth of GNP per person by region, 1960–90

Country group	Population 1980 (millions)	GNP per person, 1980 (current dollars)	Average annual percentage growth[a] 1960–70	1970–80	Low case 1980–85	Low case 1985–90	High case 1980–85	High case 1985–90
Low-income oil importers	1,133	216	1.6	0.9	1.0	1.3	1.7	2.4
Africa (Sub-Saharan)	141	239	1.6	0.2	−0.3	0.1	0.1	1.1
Asia	992	212	1.6	1.1	1.1	1.5	2.0	2.6
Middle-income oil importers	701	1,638	3.6	3.1	2.0	2.4	2.6	3.5
East Asia and Pacific	162	1,175	4.9	5.6	4.1	4.1	4.7	5.2
Latin America and Caribbean	256	1,775	2.7	3.5	2.2	2.4	2.6	3.8
North Africa and Middle East	30	667	−0.2	0.4	0.0	0.6	0.6	0.8
Africa (Sub-Saharan)	125	867	2.4	0.9	1.3	1.3	1.6	1.4
Southern Europe	128	2,950	5.4	3.2	2.2	2.2	2.5	3.4
Oil importers	1,834	751	3.1	2.7	1.8	2.2	2.4	3.2
Oil exporters	456	968	2.3	3.5	3.0	3.0	3.5	3.4
All developing countries	2,290	791	3.1	2.9	2.0	2.3	2.6	3.3
All low-income	1,310	245	1.7	1.7	1.2	1.8	2.1	2.5
All middle-income	980	1,521	3.4	3.1	2.1	2.4	2.7	3.4
Capital-surplus oil exporters	69	4,614	7.3	5.0	2.3	2.3	2.8	2.8
Industrialized countries	671	9,684	3.9	2.4	2.5	2.5	2.8	3.5
Centrally planned economies	1,386	1,720	n.a.	3.8	3.3	3.3	3.3	3.3

Note: More detailed information, including GNP and population growth rates, is in Table 5A. 1 of the statistical appendix to Part I.
a. Calculated in 1977 dollars.

Compared with the industrialized countries, growth per person in developing countries will be slightly lower. The resultant widening in income disparities occurs primarily because of slow growth in the low-income countries and in the two slowest-growing middle-income groups. Research for this *Report* suggests that average growth per person of about 1.5 percent a year in low-income countries and about 2 percent in middle-income countries is needed to prevent the number of people in absolute poverty from rising. Thus, for these slow-growing groups (except South Asia in the High case) the extent of absolute poverty is likely to increase during the decade.

Policy implications by country categories

Given current policies, growth in oil-importing developing countries, with their total population of 1.8 billion, is likely to be unacceptably low. The steps needed to move toward, or beyond, the High case can be summarized by country group.

- For the oil-importing developing countries, faster growth depends heavily on economic management. This requires efforts to increase exports and investment, and to improve the efficiency with which existing and new investment is used. But increasing their import capacity and their ability to service debt will require buoyant export markets, and more capital from abroad.
- The oil-exporting developing countries can grow rapidly; but they must invest their oil revenues productively in the early part of the decade, and ensure that efficient production is encouraged in the nonoil as well as oil sectors of the economy. This will enhance their creditworthiness for the expanded borrowing needed to maintain strong growth after 1985.
- The capital-surplus oil exporters can contribute to efficient recycling by expanding their holdings of real and financial foreign assets, by avoiding disruptions in oil supplies or sharp price fluctuations, and by extending more direct financial support—concessional and nonconcessional—to developing countries. And they can help the developing countries to expand foreign earnings by buying more from them and by continuing to provide employment for their migrant workers.
- The industrialized countries can help by avoiding excessive deflation and by promoting technical and policy innovations to overcome structural constraints, thus encouraging a rapid resumption of sustained growth. They will assist developing countries (and themselves) by importing more from them; this requires trade liberalization as well as economic growth. The industrialized countries should reverse the tendency for their aid to fall as a share of GNP and should encourage prudent expansion in lending from their commercial capital markets to developing countries. The low-income countries in particular need more external financial support than is currently in prospect. The richer centrally planned economies also have the capacity to extend considerably more aid to developing countries and to expand trade with them.

What would be required for even faster growth?

It will take the kind of strong efforts discussed above to reach the High case. But that growth is itself low—measured against that of the 1960s and the first part of the 1970s, and by any reasonable expectations for development. Both for the world economy and especially for the developing countries, the potential exists for substantially faster growth. While the chances of exceeding the High case seem slim, it is important that all countries recognize the advantages—and the feasibility—of higher growth.

What would it require? One important element is more effective adjustment by the industrialized countries, particularly to higher energy costs. Another is a liberal trade environment, with less protection for products in which developing countries have an actual or potential cost advantage (this would help to reduce inflationary pressures). A third is more progress by all countries in producing and conserving energy, and some reasonable assurance that supplies would not be suddenly disrupted. Improvements in efficiency and some further increases in domestic savings in developing countries would also be valuable. Finally, capital flows to developing countries would need to increase substantially. Given increases in developing-country exports (and thus in debt-servicing capacity) and in the efficiency with which capital is used, developing countries would become increasingly attractive customers to commercial lenders. If the industrialized countries grew more rapidly, they would find it easier to provide more aid.

With good progress in all these areas, GNP per person in the developing countries perhaps could grow 4.3 percent a year in the second half of the 1980s (compared with 3.3 percent in the High case). This would mean growth of 3.9 percent a year in the oil-exporting developing countries, 3.6 percent in the low-income oil importers and 4.6 percent in the middle-income oil importers.

Achieving these results would require much more international cooperation than now seems likely. Aid of at least 0.5 percent of in-

dustrialized countries' GNP would be essential; still higher aid flows—approaching the 0.7 percent UN target—would raise growth further and help to reduce disparities between low- and middle-income countries. In addition, economic management would have to improve considerably. International efforts to encourage the steps required to increase growth—including those now being considered as part of the International Development Strategy of the United Nations—are therefore very much to be welcomed.

Table 2.9 Developing countries' GNP per person, 1980–2000

(1977 dollars)

		1985		1990			2000		
Country group	*1980*	*Low case*	*High case*	*Low case*	*High case*	*Faster growth*	*Low case*	*High case*	*Faster growth*
Low-income oil importers	168	177	183	188	206	218	215	261	311
Middle-income oil importers	1,275	1,408	1,448	1,585	1,719	1,813	2,009	2,423	2,843
Oil exporters	753	873	896	1,012	1,058	1,085	1,360	1,475	1,591
All developing countries	615	679	702	761	825	866	955	1,139	1,320

Broader implications of the projections

Since *World Development Report, 1979* was published, there have been major attempts to advance thinking and policies on development. The OECD study *Facing the Future* (Interfutures) was a result of three years' research on prospects for the global economy. The Independent Commission on International Development Issues (the Brandt Commission) published its findings in *North-South: A Program for Survival*, which called for bold reforms to avoid an otherwise grave future for international economic and political relations. The analysis of the present *Report* strongly endorses the Commission's emphasis on the interdependence—through trade, energy and capital flows—of all countries, as well as its emphasis on the importance of renewed efforts to reduce worldwide poverty.

There has been continuing, intense debate over an appropriate strategy for the Third Development Decade. But all agree on the need to raise the growth of the developing countries.

The advantages of higher growth are striking. To illustrate, Table 2.9 shows what would happen to GNP per person if the faster (than High-case) growth mentioned above could be achieved. Developing-country growth of about 1.9 percent above the Low case (and 0.9 percent above the High case) would start in 1985 and be maintained until the end of the century. The difference in growth may not seem large, but by 1990 for all developing countries it makes a difference of more than a seventh. By the end of the century, average real incomes with the faster growth would be almost two-fifths above those in the Low case and one-sixth above those in the High. And it is only with this sharp acceleration that growth of income per person in developing countries would match that of the industrial countries.

What does this growth mean for people's lives? The same method for estimating the link between income growth and poverty reduction used in the previous two *World Development Reports* suggests the following effects. In 1980 the number of people with incomes below the absolute poverty line is approximately 780 million. With the Low case this number would actually increase over the next decade to 800 million; in the High case it would fall slightly, to 720 million. If it were possible to achieve the faster growth mentioned, the number could fall sharply—to 590 million. The difference—reducing the number of people in poverty by between 60 million and 190 million during the next 10 years—is a powerful reminder of the benefits of higher growth. And as discussed in Chapters 4 and 5, growth in incomes is also vital for better nutrition, health and education, as well as for lower fertility.

The challenge of the decade

The world will reap great benefits from rapid growth. Without it, hundreds of millions of very poor people will live and die with little or no improvement in their lot. Many developing countries will find it hard to maintain political stability.

The developing countries face formidable obstacles on the way to rapid growth—many of which they will have to overcome themselves. But through their policies on trade, aid and other capital flows, the industrialized countries and the capital-surplus oil exporters have a striking impact on how much the developing countries can accomplish. Much will depend on the degree of international cooperation—which at present threatens to fall short of what is needed. For poverty, growth and political stability, the implications of the Low case—itself not the worst possible outcome—show that the world can ill afford such failures.

3 International problems and policies

The analysis in Chapter 2 has emphasized that the international economic outlook poses particularly difficult choices for policymakers in the 1980s. A sustained recovery of the world economy from the slowdown expected in the next few years will depend largely on the policies pursued in the three areas of international concern discussed in this chapter—energy, trade and capital flows. Particular attention is paid to policies aimed at ensuring that current account deficits are financed—and over time reduced—with minimal loss in the growth of developing countries. Where projections are given, they are consistent with the High case described in Chapter 2, but the specific policy issues discussed here are not related to any particular set of projections.

Energy

Recent increases in petroleum prices (Figure 3.1) have ensured that the economic impact of energy will remain a central concern of policymakers everywhere. Their past concern, however, has achieved only limited success in producing coordinated energy policies—in part because of the emphasis given to managing immediate balance-of-payments difficulties. While this issue is again important, all economies will also have to adapt to higher energy prices. The long-term outlook is uncertain, but prudent energy policy should assume that real energy prices will rise for the foreseeable future. Temporary fluctuations aside, what happens to prices will be determined by trends in energy conservation and production: this section considers each in turn, paying particular attention to the position of developing countries.

Conservation

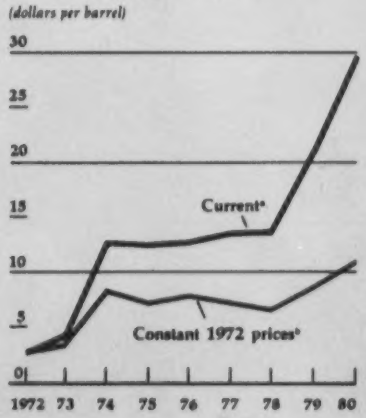
• Industrialized countries. The greatest scope for conservation lies with the industrialized countries; they account for more than half of world energy consumption (and more than a third of production).[1] On average the industrialized countries use about eight times as much commercial energy per person as the middle-income developing countries and more than 40 times as much as the low-income countries. This is partly because they are more industrialized; but their agriculture and households are also more energy-intensive. They have been reducing the ratio of energy use to GNP: between 1973 and 1977 this ratio fell 16 percent in Japan, 13 percent in France, 12 percent in the Federal Republic of Germany, 10 percent in both the United States and Italy, 9 percent in Canada and 7 percent in the United Kingdom. Moreover, Japan and Western Europe have held their absolute volume of petroleum use constant since 1973, and the United States has done so since 1978.

1. The word "energy" means commercial energy unless otherwise specified.

This represents considerable progress, but it is still inadequate. The evidence of the past six years shows that pricing policies (including taxes) have a major role to play in curbing energy demand (and, no less important, in encouraging domestic production). But political difficulties have often inhibited governments from passing higher energy prices through to final consumers. These difficulties have been most acute in the United States and Canada, less so in Europe and Japan.

Solutions need to be found that convey the right price signals to users—and here taxation can help (see box)—and provide incentives to producers. If higher prices mean that existing producers reap large

Figure 3.1 Petroleum prices, annual averages, 1972–80



a. Prices weighted by production shares.
b. Deflated by manufactured export prices.

windfalls, some of their extra profits can be appropriated directly —for example, by a "windfall profits tax" (the US solution) or by a "petroleum revenue tax" (as in the United Kingdom).

• Developing countries. Excluding the capital-surplus oil exporters, they account for only about 13 percent of the world's use of commercial energy (and about 15 percent of production). About half of all the energy produced by low-income oil-importing countries is noncommercial—from wood and dung, for example. As their economies develop, much of this will have to be replaced by commercial energy. Even with appropriate pricing and other conservation measures, the consumption of commercial energy in developing countries is projected to rise more than 80 percent in the 1980s, compared with GNP growth of about 70 percent. (By contrast, energy consumption in the industrialized countries is projected to rise by just over 30 percent and GNP by about 40 percent.) By 1990 the developing countries' commercial energy requirements are likely to rise to around 17 percent of world use (See Table SA.2 in the statistical appendix to Part I).

In curbing demand growth, developing countries have experienced many of the same difficulties as industrialized countries —and usually more acutely. Domestic prices—particularly of domestically produced energy — often have not been raised in line with world prices. Until recently, domestic petroleum prices in Indonesia, for example, were less than 40 percent of the world price; Egypt, Ecuador and Venezuela have also underpriced their oil. This is a major reason why energy use in relation to GNP has tended to grow much faster since 1973 in energy exporters than in energy importers like Brazil and South Korea. Some countries (Brazil, India and Pakistan, for example) have tended to pass on higher prices to domestic users relatively quickly; and others are now moving in the same direction. The alternative subsidizes energy use—thus draining budgets and discouraging conservation.

While there is a natural reluctance to inflict hardship on lower- and middle-income groups by raising energy prices, energy subsidies (if essential) should be reserved for products consumed primarily by poorer people. Even then, care is needed to prevent those products from being diverted to other uses. On grounds of equity or efficiency, there is little justification for subsidizing gasoline and domestic electricity (which in most developing countries are consumed primarily by richer groups), industrial fuels and the energy used by public sector agencies.

Production

• The oil exporters. For most major oil exporters, oil is the one reliable source of finance for their development over the medium term (at least 10–20 years). Accordingly, how much oil they produce depends on a variety of factors—such as how much investment their economies can absorb productively and without social disruption; the actual and prospective price of oil; and the (expected) yields on the foreign assets that can be bought with oil revenues.

For the capital-surplus oil exporters, current revenues far exceed immediate investment needs; their oil exports are not expected to expand rapidly. The other oil-exporting developing countries are therefore projected to increase their share of energy trade (see Table

Taxes and energy

Taxation policy has played only a small part in conserving energy in the past six years. Although higher base prices for energy have encouraged more economical use, their effects have been muted because energy taxes have not risen as much. Gasoline provides a good example: while crude oil prices rose three and a half times in real terms between the beginning of 1970 and mid-1979, real gasoline prices in the seven largest industrialized countries rose between 3 percent (Canada) and 37 percent (Italy). As a proportion of the final price, taxes fell in all seven countries (see table).

The sharp rise in oil prices in 1973–74 reduced the relative importance of taxation in every kind of petroleum product; little has been done since to restore it. In the early and mid-1970s, the reluctance of governments to add to inflation often took precedence over conserving energy by raising its price. There is now greater emphasis on conservation (an emphasis strongly endorsed by the major oil producers), with higher prices having a key role to play.

Energy taxation has two other advantages. First, the revenues can be used to mitigate the overall effects on the cost of living (through subsidies, for example, or increased transfer payments). Second, taxes can be varied so as to cushion the shock of sudden increases in oil prices. Higher prices can be passed on in full over a period—but smoothly, with taxes sometimes rising more than oil prices, sometimes less. This could reduce uncertainty and assist energy planning by households and firms.

Effective rates of gasoline taxation, 1970 and 1979

	Gasoline tax as percentage of pretax price	
Country	*1970*	*1979*
Canada	82	48
France	290	180
Germany, Federal Republic of	264	126
Italy	364	209
Japan	142	72
United Kingdom	257	47
United States	44	18

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Table 3.1 Shares of net world trade in commercial energy, 1977–90 (High case)
(percent)

Country group	Estimated 1977	Estimated 1980	Projected 1985	Projected 1990
Share of exports				
Capital-surplus oil exporters	70	64	63	65
Oil-exporting developing countries	23	28	31	33
Centrally planned economies	7	8	6	2
Total	100	100	100	100
Share of imports				
Industrialized countries	79	78	77	73
Oil-importing developing countries	21	22	23	27
Total	100	100	100	100
Memo item				
Volume of total net trade (millions of barrels per day)	33.9	30.2	32.8	34.0
Of which bunkers and other[a]	4.6	4.6	5.8	6.5

a. These imports are not allocated to country groups.

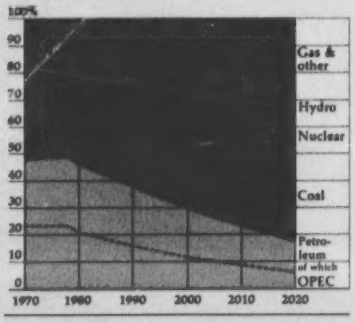
3.1). This will require increased investment in exploration and exploitation; yet spending on exploration and the ratio of proven reserves to production are declining in some countries, while the domestic consumption of oil is rising in all.

Both oil exporters and importers share a common interest in ensuring that oil price rises and supplies do not change sharply or unpredictably. Steady changes would help investment planning and financial management in the importing countries; and all countries stand to gain from a stronger, more stable world economy.

• New supplies of energy. In 1974 producers and governments may have doubted that real oil prices would be maintained, so there was less pressure to commit the funds needed to develop alternative energy supplies. Today such doubts have disappeared. But considerable uncertainty remains about the returns from developing some potential alternatives to oil; and energy projects take many years to come on stream, and require large capital outlays. The projections in Figure 3.2 (and Table SA.3) take a positive view of what can be achieved. With strong efforts to develop these alternatives, the share of petroleum in the world supply of primary commercial energy could fall from 46 percent in 1980 to 38 percent in 1990; by contrast, its share fell by only two percentage points between 1970 and 1980.

In addition to raising the profitability of developing domestic petroleum and other conventional sources of energy, higher oil prices stimulate research into new ways of producing, converting and using energy of all kinds. Many alternative sources are still in their technical and economic infancy, while others—notably nuclear power—face opposition on environmental grounds. This is an important source of uncertainty about production prospects, particularly over the long-term; but in the next 5-10 years production will be determined mainly by projects now in the pipeline. For technological and financial reasons, the development of supplies of new energy to the stage of commercial production is mainly a task for the industrialized countries. How it is achieved will also influence the prospects for energy production in developing countries, considered in the rest of this section.

Figure 3.2 Actual & projected shares in world primary energy supply, 1970–2020



• Developing countries' energy production. Since 1973 several countries (including Cameroon, Ghana, Guatemala, Ivory Coast and the Philippines) have started producing petroleum; existing producers (such as India, Malaysia and—strikingly so—Mexico) have expanded capacity. Although exploration generally has been inadequate, discoveries of exploitable oil and gas deposits have been made (for example, in Chad, Pakistan, Tanzania and Thailand). Several developing countries (including India, Turkey, South Korea and the Philippines) have expanded coal and lignite production; others (among them Argentina, Brazil, Cameroon, Ivory Coast, Uruguay and Sri Lanka) have taken measures to increase hydroelectricity output; a few (most notably Indonesia and the Philippines) are tapping significant geothermal sources; and Brazil leads the world in producing alcohol fuel for automobiles.

In the 1980s progress should accelerate—but will require large increases in investment. The main gains are likely to be in petroleum and natural gas, coal, and primary (other than thermal) electricity generation—mainly hydro and nuclear. But much also needs to

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be done to increase the supplies of the kinds of energy that are particularly important for poor people.

• Petroleum and natural gas. While the oil-importing developing countries have only about 2 percent of the world's proven oil reserves, their share of ultimately recoverable oil reserves may be 15 percent. One study (undertaken for the World Bank) estimated that 23 of 70 countries surveyed each might have ultimately recoverable reserves of at least 750 million barrels. (For comparison, net imports of oil for energy use by developing countries will amount to about 110 million barrels in 1980.) To realize their full potential, most countries must step up exploration activities; the same study judged that exploration was inadequate in 51 of 58 countries that were not producers.

Gas is widely spread; many countries can significantly expand production—both for domestic energy use and for petrochemicals—during the decade. A lot of gas associated with oil production is now wasted by venting or flaring; much of it could be recovered.

• Coal. For most developing countries, coal is still a minor fuel used mainly in electricity generation and—in larger coal producers (such as India, Turkey, South Korea and Yugoslavia)—in industrial applications. Coal can substitute for oil in electricity generation, but the potential for increased use is limited largely to new capacity—since converting existing plants is often uneconomic.

• Primary electricity. Two-thirds of the electricity generated in developing countries is used in industry (compared with 40 percent in the industrialized countries). Hydropower, currently accounting for 44 percent of electricity output, can be greatly expanded in many developing countries—particularly in Latin America. Despite considerable geothermal potential in up to 30 developing countries—among them Kenya, Mexico, El Salvador, Nicaragua and the Philippines—geothermal capacity will produce relatively little electricity in the 1980s. But nuclear power could produce 11 percent of the total by 1990 (2 percent in 1980)—mainly in the major existing producers (Argentina, Brazil, India, South Korea and Pakistan) but in other countries as well (for example, Romania, Thailand, Yugoslavia and the Philippines).

• Other sources. Any significant increase in the production of oil from tar sands in developing countries depends on a major technological breakthrough. Solar and windpower are also unlikely to make much of a contribution over the next 10 years; shale oil and methanol have rather more potential. Alcohol produced from biomass (cereals, sugarcane, beets and so on) is now used as a partial substitute for gasoline. The technology for producing it is well established. A key question is the extent to which agricultural land should be diverted from food to fuel production (see box).

• Energy for the poor. The poor, especially those in rural areas, rely on noncommercial energy for cooking and heating; these forms of energy provide more than 85 percent of rural requirements in many countries. Yet their supplies are dwindling, thus inflicting several sorts of hardship. Much time is spent just in gathering fuel (for

Fuel from food

Alcohol produced from sugarcane or grains is becoming competitive with gasoline as real petroleum prices rise. Conventional automobiles and trucks can run on "gasohol," a mixture of alcohol and (at least 80 percent) gasoline. With engine modifications, they could run on pure alcohol; such engines are already being produced in Brazil. By 1977 the estimated national ratio of alcohol to gasoline use in Brazil was 4.3 percent; in 1979 it had risen to 19 percent, and will rise further as more cars run on pure alcohol.

Brazil's alcohol is still derived almost exclusively from sugarcane, but alcohol can be produced from a variety of crops. Ethanol, the cheapest alternative to gasoline in the 1980s, comes from fermenting sugar crops, principally sugarcane; root crops, mainly cassava; and cereals, especially corn and potentially sorghum. The United States also has ambitious plans for producing alcohol fuel, primarily from corn. The US target of 2 billion gallons of ethanol by 1985 would require 20 million tons of corn or its equivalent, one fifth of the current US exportable grain surplus. And other food exporters (including Argentina, Australia, New Zealand, the Philippines and South Africa) either have already launched or have the potential for large "gasohol" programs.

This development could indirectly affect the availability and price of food for developing countries that either import grain on commercial terms or depend on international food aid to meet their deficits. Current plans in Brazil and the United States envisage that the area of cultivated land would be expanded to grow fuel crops, so that food production (and therefore price) is not significantly affected. In practice these goals may not be fully achievable.

Whether ethanol proves economic in other countries will depend on land availability, markets and prices for food exports, and the development of such alternative sources as wood, sorghum and agricultural waste. In the next five years or so, the quantity of agricultural production diverted into alcohol is likely to be small (with the exception of Brazil and the United States). But as more countries consider ways of reducing petroleum import costs, the "food or fuel" issue may become more serious. A satisfactory solution will require a major effort to develop alternative biomass sources of energy, including crops that can be grown economically on marginal land.

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example, 5 to 19 work days a month for each family in upland Nepal); often the gatherers are children who might otherwise be in school. In many countries (including the entire Sahelian belt from Senegal to Somalia) forest land is being turned into desert. This pernicious process would be (at least partially) arrested if affordable energy were made available. As well as this, burning dung and vegetation carries health risks, and every year deprives the soil of enough fertilizer to produce 20 million tons of grain—enough to feed 100 million people.

Although there are no easy solutions to these energy problems, the essential policy initiatives remain as described in last year's *World Development Report*. Existing forests must be husbanded, new ones planted. Roughly 50 million hectares (125 million acres) of fuelwood planting may be required by the year 2000 to meet domestic needs for cooking and heating in developing countries. Their present rate of afforestation is less than a tenth of what is needed to ensure self-sufficiency in fuelwood by then. More efficient ways of burning wood (for example, improved stoves) can help; but new technologies need to be devised to use the sun, the wind and other renewable energy sources. And better use should be made of other traditional fuels (for example, through biogas generation, which does not destroy the fertilizer value of animal wastes).

The need for energy strategies

In the developing countries, national and regional planning is urgently needed to evaluate fuel minerals and other energy sources, to examine conventional and new technologies, and to assess the likely trends in demand for commercial and noncommercial energy.

But many countries do not have formal energy strategies and adequate sector plans. Planning continues to be hampered by lack of essential data on fuel deposits, on consumption patterns and on how energy demand and supply are likely to respond to income and price changes. Geological and geophysical surveys and detailed market studies are still required before effective planning can take place. Many countries also lack some of the technical and managerial skills required to undertake the preliminary studies, draw up an energy plan and oversee the exploitation of domestic energy resources.

Countries facing these constraints can benefit from external capital and technical assistance. Although some assistance has been provided already (for example, by the UNDP and the World Bank), there is scope for considerable expansion of these activities.

International trade

International trade has been emphasized in previous *World Development Reports* for two reasons: first, trade is a principal means of promoting economic efficiency and growth; second, a strong trade base tends to be a prerequisite for attracting foreign capital. Given the world economic outlook, these benefits acquire added significance; but two policy questions stand out.

- What developments in world trade (and the resulting effects on the distribution of payments deficits) will contribute most to rapid growth?
- With a less buoyant outlook for world trade, do developing countries face a changed tradeoff between producing for the foreign or for the domestic market?

The first question turns mainly on the policies of the industrial and oil-exporting countries: they are discussed first. The second question is largely a matter for developing countries: their policies are considered in the second part of this section.

Trade policy for industrialized countries

Most industrialized countries will run current account deficits in 1980. How they respond to these deficits will largely determine the climate for world trade. If they all simultaneously attempt to restrain imports while boosting exports, shrinking markets for each others' exports will defeat their purpose, and world trade and output will suffer—as happened in acute form in the 1930s.

After the 1973-74 oil price rises, some of the major trading nations (especially Japan and the Federal Republic of Germany) acted quickly to reverse the deterioration in their trade accounts. They were able to do so because some industrialized countries (notably the United States) and most developing countries financed much larger current account deficits, and because surpluses of the major oil-exporting countries were quickly reduced. Avoiding an excessive slowdown in world trade and output in the early 1980s requires that industrialized countries, as a group, run larger deficits—and for longer.

The countries best placed to run large deficits and thereby support growth are those with the capacity to borrow heavily (or run down reserves)—and those with the lowest inflation, since deflationary policies aimed at curbing inflation will tend to moderate demand for imports. Industrialized countries that restrain domestic growth to control inflation should minimize the effect on world trade by maintaining their demand for imports and avoiding beggar-thy-neighbor support for exports. They can do this by refraining from deliberate

exchange-rate depreciation, by avoiding subsidies to exporters and by opening their markets to imports.

Each of these policies will also serve to dampen inflation. Without them, the industrialized countries will find that the developing world cannot maintain its growth—or its demand for their exports.

• The outlook for exports. The sluggish demand from the industrialized countries expected in the early 1980s will harm developing countries' exports—particularly of primary commodities—as it did during 1973–77. The growth of developing countries' exports decelerated sharply in that period; their exports of primary commodities fell after growing at around 4 percent a year in 1963–73 (see Figure 3.3). Even excluding fuels, primary commodities account for about 55 percent of the merchandise exports of developing countries and they have grown roughly in line with the industrialized countries' GNP.

There is no reason to expect this relation to change, especially as exports of some agricultural products remain constrained by heavy protection in Japan and Western Europe. Even if demand were to grow rapidly, the developing countries may not be able to expand the volume of their agricultural exports very much (because of supply constraints), though they would benefit considerably from higher prices. In the short-term, most primary producers would be assisted by improved schemes to stabilize revenues or prices (see box overleaf). If the industrialized economies begin to pick up, there would be a recovery in demand for primary products.

The outlook for manufactured exports is much brighter; as in 1973–77, their growth is likely to be comparatively robust. At present, they account for only about 10 percent of the imports (and less than 2 percent of the consumption) of manufactured goods in the industrialized countries. But they are concentrated heavily in some products, and therefore have attracted protectionist attention. The developing countries most directly affected by protection have been the more successful exporters (particularly the major East Asian exporters of manufactures and Brazil); but they have continued to expand their exports rapidly by diversifying into new product lines. Current restrictions on items other than textiles and clothing are not (with some minor exceptions) an insuperable barrier to rapid export growth.

Harder to assess (but clearly important) is the longer-term disincentive—from both current restrictions and risks of their expansion—to countries at earlier stages of export development. Generally, they do not have the manufacturing and marketing skills required either to export a wide range of manufactures or to adapt quickly to changes in market conditions.

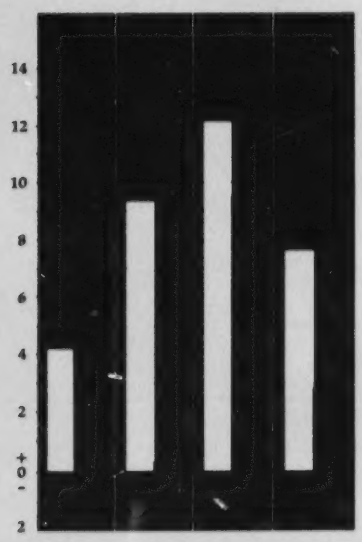
While no new major restrictions were imposed in the past year, some measures were consolidated. In some sectors (particularly textiles and clothing) elaborate mechanisms to control imports have become more entrenched, reducing the chances of their early removal. In some industrialized countries, imports of footwear and some consumer electronic goods are still subject to fairly stringent quotas. In shipbuilding, although substantial subsidies remain, there has been progress recently in cutting capacity in uncompetitive countries. France and the United Kingdom, in particular, have taken steps to reduce general subsidies to industry.

• The Tokyo round. The latest (Tokyo) round of multilateral trade negotiations (MTN) was largely completed in April 1979; it made valuable progress in some areas (see box on page 21); in some others, the results were a disappointment for the developing countries. Nonetheless, the MTN agreements have considerable potential to liberalize trade.

The extent to which this potential is realized, especially by developing countries, will depend on how the agreements are implemented and on the outcome of continuing negotiations—the most important of which pertain to the safeguard clause. This attempts to limit the emergency protection that can be adopted on the grounds of serious injury to domestic industry. Safeguard measures have been invoked frequently against imports from developing countries (often outside the legal framework of the General Agreement on Tariffs and Trade—GATT). The main dispute holding up agreement is

Figure 3.3 Growth of developing countries' merchandise exports, 1963–73 and 1973–77[a]

(average annual percentage change, 1970 prices)



a. Excludes exports to centrally planned economies (about 7 percent of developing-country exports in 1977). Country groups correspond to UN classification. Developing countries include capital-surplus oil exporters and exclude South Africa and most of southern Europe.

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Stabilizing export earnings

Two international facilities already exist to help stabilize the export earnings of developing countries.

- The IMF's compensatory financing facility. A country in balance-of-payments difficulty is eligible to draw up to 100 percent of its quota, if exports fall below a defined trend for reasons generally beyond its control. After the facility was liberalized in December 1975, drawings by members rose sharply. Compared with 57 drawings totaling SDR 1.2 billion (about $1.3 billion) in 1963–75, 107 drawings totaling SDR 4 billion ($4.9 billion) were made from January 1976 to March 1980—accounting for nearly a third of the total credit extended by the IMF to all its members.

  The scheme has several advantages: (a) it applies to exports in general—even receipts from tourism and workers' remittances qualify for support if data are available; (b) drawings are not at the expense of other rights to draw on IMF resources; and (c) potential access is now large—about $16 billion for oil-importing developing countries once the seventh general review of quotas takes effect. But there are disadvantages too: because the amount a country can borrow is determined by its quota, it may be relatively little for countries (such as Zambia) that are heavily dependent on a single commodity export with sharply fluctuating prices. And it provides no compensation for a sharp increase in import requirements (for example, if a harvest fails)—which can be equally unpredictable and outside a member's control. (The IMF is studying the possibility of giving assistance to members adversely affected by higher costs for food imports.)

- The European Community's Stabex scheme. It covers the 58 African, Caribbean and Pacific (ACP) countries that are members of the Lomé agreement; 12 primary products were covered at the outset, 44 are eligible for support under Lomé 2. Proposed funding for Stabex in Lomé 2 is $775 million for 1980–85, compared with $575 for Lomé 1.

  There are some minor reforms in the new agreement but the principles remain the same. To qualify for support, a commodity must have accounted for at least 6.5 percent (7.5 percent under the old agreement) of a country's total exports to all destinations in the preceding year, or 2.0 percent (2.5 percent previously) for the 44 ACP members that are least developed, landlocked or islands. A Stabex transfer can be made if export earnings of a qualifying product fall below its average earnings over the four preceding years by 6.5 percent or more (2.0 percent for the 44 special cases)—down from 7.5 and 2.5 percent under the old agreement.

  Stabex transfers to the 35 least-developed countries are grants; to other countries they are interest-free loans, to be repaid over seven years with two years' grace. Under Lomé 2 a related but different facility for minerals will also be introduced. A major advantage for ACP countries receiving payments is that Stabex offers "untied" foreign exchange on concessionary terms. But it is small, does not fully cover earnings losses resulting from inflation, and is not as automatic as its (complex) rules suggest.

  In addition, there is the UNCTAD Common Fund—agreed upon in principle, but with legal and technical questions still to be resolved. The original proposal was for a fund of $6 billion—$4.5 billion to stabilize 10 "core" commodities, with a "second window" of $1.5 billion for other measures (product diversification, research and processing). The idea is that a central fund would finance buffer stocks under separate international commodity agreements (ICAs), and would thereby stabilize commodities prices. The current proposal is for $400 million for buffer-stock financing (from member governments and deposits by ICAs) and a second window of $350 million from voluntary contributions (by April 1980, $170 million had been pledged).

whether safeguard measures can be invoked selectively against specific countries—an approach favored by some industrialized countries but opposed by developing countries.

If developing countries sign (and actively participate in) the Tokyo agreements, they are likely to add significantly to the benefits they obtain from it. Under its terms, only signatories can participate in the implementation and surveillance of the governing codes of conduct. But most developing countries so far have refused to sign—partly because of dissatisfaction with the progress made and partly because they maintain that they should benefit from the codes without being bound by their provisions.

The reciprocal obligations of developing countries are a sensitive issue that will be increasingly important in future negotiations. In particular, the status of those developing countries that are major exporters of manufactures and are reaching a more advanced stage of development ("the graduates") is unresolved. If their eligibility for special treatment were reduced, there would be more scope for the lower-income countries to benefit.

The extent of the gains from the MTN nevertheless depends mainly on the industrialized countries. Stagnation or slow growth of their economies reduces alternative employment opportunities for displaced workers, and aggravates protectionist sentiment. (There is in fact no evidence that competition from developing countries is a major cause of unemployment. Several studies have shown that a balanced increase in trade with developing countries has insignificant effects on employment in industrialized countries, especially as compared with the job losses due to technological change; other studies show employment gains for some countries.)

In turn, protection impedes economic recovery by slowing the movement of resources from low- to high-productivity sectors, thus exacerbating inflation. And imports can reduce inflation directly, restraining the price rises that domestic producers seek and increasing the pressure on them to improve efficiency. A 1978 survey in the United States of all consumer goods (except food and automobiles) found that imports from

Table 3.2 World merchandise trade, by country group, 1970 and 1977
(percent)

	Destination								
	Oil-importing developing countries		Oil-exporting developing countries		Capital-surplus oil exporters		Industrialized countries		World[a]
Origin	1970	1977	1970	1977	1970	1977	1970	1977	1970 and 1977
Oil-importing developing countries	17.4	20.5	3.5	8.4	1.5	3.1	69.0	61.8	100.0
Oil-exporting developing countries	21.8	21.5	3.9	2.2	0.5	0.8	66.6	72.6	100.0
Capital-surplus oil exporters	20.2	20.6	1.7	4.3	0.8	1.2	74.4	69.6	100.0
Industrialized countries	18.2	16.4	4.7	6.7	1.5	5.6	71.0	65.7	100.0
World[a]	18.0	16.9	4.1	6.1	1.3	4.3	65.4	62.2	100.0

a. Includes centrally planned economies and unallocated trade (usually about 1 percent).

Asia and Latin America were on average 16 percent cheaper than domestic products of similar quality.

Pressures for protection can be offset by policies to improve productivity within particular industries and to ease the movement of resources between industries. Policies to improve mobility were discussed at length in last year's *World Development Report*. These include quick and adequate compensation for affected individuals, retraining schemes and the creation of new industries, and removing obstacles to labor mobility, such as nontransferable pension rights. These measures complement efforts to raise employment and growth and to reduce inflation. But if adjustment policies are not properly designed and implemented, they can delay rather than assist restructuring.

Trade issues for capital-surplus oil exporters

After the 1973–74 oil price increases the oil-exporting countries rapidly expanded their imports—thereby moderating the world economic slowdown. The imports of the capital-surplus countries are unlikely to grow in the 1980s at the extraordinary rate (more than 20 percent a year) of the 1970s; but they are expected to grow almost twice as fast as the imports of the industrialized countries (9 percent a year compared with 5 percent). This will offer buoyant opportunities for exporters in developing countries—but within limits, since the oil-exporters' market is still relatively small (see Table 3.2).

Multilateral trade negotiations: the Tokyo round

Several novel features are contained in the MTN agreements, including the incorporation of preferential treatment for developing countries into the legal framework governing trade and codes on nontariff barriers. But they largely exclude existing quantitative restrictions on textiles, clothing and agriculture.

Tariffs. Industrialized countries are to reduce tariffs 38 percent (simple average) over eight years, affecting trade worth about $125 billion (1976 values). The simple-average tariff cut on developing countries' traditional exports would amount to 25 percent for industrial and 7 percent for agricultural products. The tariff reductions are less than average on products eligible for the generalized system of preferences; they are larger on finished manufactures than on semimanufactures.

Nontariff barriers. The aims are as follows:

- To prevent increases in protection arising from use of arbitrarily determined customs values as a base for tariffs.
- To reduce discrimination against foreign suppliers for government contracts valued at SDR150,000 (about $200,000) or more.
- To regulate export subsidies and, for countervailing duties, to require proof that subsidized imports caused material injury to the domestic industry in question.
- To ensure that technical regulations adopted for such reasons as health or environmental protection do not create unnecessary obstacles to trade.
- To prevent procedures for import licensing from constituting barriers to trade.

Framework for conduct of trade. This reforms several aspects of the GATT system. Its main features are: providing a legal basis within GATT for preferential treatment of developing countries, and special treatment of the least-developed countries; increasing the regulation of trade measures adopted for balance-of-payments purposes; recognizing the developing countries' need to take safeguard action not only for new industries but also for modifying their production structure; revising GATT procedures for supervising adherence to international rules.

Others. Antidumping measures and restrictions on trade in dairy and certain meat products were amended.

Provisions for developing countries. Aside from the framework agreement, special provisions include:

- A five-year delay in implementing the customs code, and longer exemptions for certain goods.
- Fewer entities to be covered by the government procurement code; and technical assistance for tendering bids.
- Delays of up to two years in applying the import-licensing code.
- Export subsidies to nonagricultural products are not flatly prohibited; but developing countries should avoid using subsidies to harm the interest of trading partners, and phase them out gradually.

Aside from the safeguards clause, the areas of continuing negotiations are commercial counterfeiting, adequate access to vital imports and restrictions on agricultural trade.

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Migration and money

Emigration once played a crucial role in reducing poverty in Western Europe: about 50 million people are estimated to have left for the "new world" in the second half of the 19th century. Whole families moved then, for good. Today many of the migrants are male workers who go abroad for a period and send much of their earnings home. Many of them are illegal; some of their remittances go unrecorded or enter official balance-of-payments accounts in ways that make it hard to disentangle them from other flows.

While estimates are imprecise, the broad picture is clear. There were roughly 20 million migrant workers in the world in the late 1970s, of whom 12 million were from developing countries. Some 6 million were in the United States (mostly Mexicans); 5 million in Western Europe; and 3 million in the Middle East (other main destinations include the West African coast and the mines of South Africa). The number in Western Europe increased from 2 million in the early 1960s to 6 million in the early 1970s and then declined, but this was more than offset by an upsurge in migration to the oil-rich countries of the Middle East. More than 2 million of the migrant workers in Europe are from developing countries (mainly Algeria, Morocco, Tunisia, Turkey and Yugoslavia); in the Middle East about 2 million come from other countries of the region, most of the other 1 million from South Asia.

Remittances to developing countries have grown rapidly, from about $3 billion in 1970 to an estimated $17.5 billion in 1980, with more than $3 billion going to South Asia, about $5 billion to the Middle East and North Africa and close to $7 billion to Southern Europe. Remittances are about a fifth as large as merchandise exports in South Asia, and in the Middle East and North Africa (excluding the capital-surplus countries). The proportion is especially high in Pakistan, Bangladesh, Jordan, Egypt, Morocco and the two Yemens. Other countries where remittances are particularly important include India, Turkey, Greece and Yugoslavia.

There has been controversy over the net benefits to developing countries when skilled people emigrate. The "brain drain" represents a serious loss of manpower for some countries, and there are social costs as well. But governments can often take steps to encourage vocational education and training to meet a demand for skills—in order to increase remittances while retaining enough trained people within their countries. In any event, most of the objections apply less strongly to the unskilled or semiskilled, the majority of migrant workers; for them, migration offers a chance of dramatic improvement in their often meager incomes.

The share of the oil-importing developing countries' exports going to both the capital-surplus and other oil-exporting developing countries increased sharply between 1970 and 1977 (Table 3.2)—exports to each group grew at annual rates exceeding 20 percent. Some developing countries (including South Korea and India) have won major contracts for "turnkey" plants and for construction and consultancy services; these areas offer many export opportunities.

Remittances from migrant workers in the oil-rich states have boosted the foreign exchange earnings of some developing countries considerably (see box above). Labor shortages remain a significant constraint on growth for several oil-exporting countries. But migration raises sensitive social and political issues for countries of origin and destination; if investment programs in the capital-surplus oil exporters are more conservative and slow growth persists in the industrialized countries, migration is likely to grow less rapidly in the 1980s.

Trade policy for developing countries

Slower growth in world trade does not change the principles that should govern the trade policies of developing countries. Generally, the policies that maximize benefits from trade in good times will also maximize them in bad. But the likely slowdown in trade poses markedly different policy problems for oil-exporting and oil-importing developing countries. As discussed in *World Development Report, 1979*, the main trade issue for oil exporters is to prevent their sharply increased foreign earnings from discouraging growth of other exports and import substitutes.

For oil-importing developing countries, the likelihood of a difficult external environment—rising oil prices and slower growth in world trade and capital flows—increases the urgency of taking steps to earn and save foreign exchange through export promotion and import substitution. The unfavorable environment makes it harder for the developing countries to achieve rapid export growth but makes it more important to do so. Also of great importance are efforts to reduce the import requirements of their overall growth strategies—by some combination of curbing nonessential imports, shifting production toward less import-intensive items and replacing more imports by domestic production.

BALANCE BETWEEN EXPORT PROMOTION AND IMPORT SUBSTITUTION. Several factors indicate caution in emphasizing import substitution.

- Most developing countries now have trade policies that are heavily biased toward import substitution at the expense of exports. These biases commonly result from excessive reliance on quotas and administrative controls, and indiscriminate use of tariffs. Frequently such policies have been introduced in response to temporary balance-of-payments crises but then maintained for long periods. They result in misallocated resources and create a constituency for retaining protection. Reducing the general bias toward import substitution should therefore continue to be of high priority.

• Inward-looking policies may prevent developing countries from taking advantage of the considerable export opportunities that will exist in the industrialized countries even if their growth slows, and may also retard the growth of developing countries' trade with each other.

• World trade could recover strongly by the mid-1980s—and experience (particularly in the 1950s) illustrates the costs of excessive export pessimism, both in terms of lower import capacity and inefficiency in highly protected industries.

• Pricing and other policies that encourage efficient export growth encourage efficient import substitution as well.

Emphasis on selective import substitution can, however, help growth. Many countries have unexploited opportunities for import substitution through the production of energy (see pages 16–17) and food (see box). And in most countries—including South Korea, for example—it played an important role in initiating industrialization. But South Korea, unlike many countries, eliminated

Food, farming and foreign exchange

Before 1939 only Western Europe among the world's regions was a net importer of grains. Today only North America and Oceania are not. Trade in grains has risen from 25 million tons in the late 1930s to 181 million tons in 1979—from 4 percent of global production to 14 percent. North America now accounts for 20 percent of world grain production and 80 percent of world grain trade.

The largest rise in net imports since the early 1960s has been in the middle-income developing countries—from 13 percent to 23 percent of their consumption (see table). Of the low-income countries, there has also been a sharp rise in Sub-Saharan Africa. In 1980 food and beverage imports are estimated to be $7.7 billion in low-income countries (17 percent of their merchandise imports) and more than $36 billion in middle-income countries (9 percent). Historically, a 10 percent increase in average incomes has led to a 7 percent increase in grain imports in developing countries.

The growth of imports has placed severe pressure on the grain handling and distribution systems of developing countries (when domestic production is included, their marketing and distribution capacity is today handling roughly four times the tonnage of only 20 years ago). In times of food shortfalls, distributional bottlenecks are often a more important constraint than the ability to procure imports. Both these constraints argue for a measure of self-sufficiency in food but within limits: the earnings forgone as a result of diversion of resources from other agricultural (or nonagricultural) investment can be substantial. Increased food production should be part of a broad-based effort to stimulate agriculture.

From 1955 to 1975 more than 150 million hectares of new farmland were brought into production in developing countries (more than the acreage devoted to cereals in the United States, Canada, the EEC and Japan combined). But this expansion has slowed since the mid-1960s, and it can be expected to account for no more than a quarter of incremental food production in the 1980s.

Hence the importance of increasing yields. Typical constraints include: undue emphasis on large-scale irrigation at the expense of smaller projects; wasteful use of water; inadequate support for research and extension; and pricing policies that discriminate against agriculture. Several countries went a long way to removing these constraints during the 1970s. India is a good example. In the early 1970s prices to farmers were raised, and there was increased emphasis on small-scale irrigation and agricultural extension. Helped by good weather, these policies contributed to record grain crops in 1977–78 and 1978–79; in 1979–80, when the country experienced one of its worst droughts, output fell 8 to 9 percent—but the crop was still the third largest ever (some 20 percent bigger than in 1973–74, when there was a comparable drought).

Water may become a critical constraint in agriculture in the next 25 years. Over the past 50 years the area under irrigation has trebled. Costs of irrigation have risen far more rapidly than water charges generally; the result is inefficient use and a lack of funds for maintaining and operating irrigation systems. Water wastage is immense: in many parts of the world only 25 percent of water released from dams is used to grow crops. Improved management of water systems would result in major increases in grain production. But for large parts of the world and many of the world's poorest people, the key to greater food production lies in a breakthrough in dryland farming (see Chapter 4, page 37).

Grain consumption and trade

(millions of tonnes)

Country or country group	Average annual consumption[a]		Average annual net trade balance[a]	
	1960–63	1977–79	1960–63	1977–79
United States	139.8	173.5	32.7	94.9
Canada	15.1	22.5	10.2	17.7
EEC	92.0	118.3	−21.5	−8.0
Other	50.3	83.6	−3.0	−18.5
Eastern Europe	64.3	106.5	−6.4	−12.4
USSR	119.0	217.6	7.3	−17.9
China	112.3	225.2	−4.0	−8.7
Developing countries[b]	254.1	427.3	−11.1	−36.0
Low-income	139.3	214.0	−5.6	−8.7
India	73.1	109.4	−4.1	−1.3
Middle-income	101.3	191.8	−12.7	−44.7
Major exporters[c]	13.5	21.5	7.2	17.4

a. Excludes Albania, Cuba, Mongolia and Southern Africa (South Africa, Lesotho and Zimbabwe).
b. Includes capital-surplus oil exporters and excludes Southern Europe (Greece, Portugal, Yugoslavia, Romania and Israel).
c. Thailand and Argentina.

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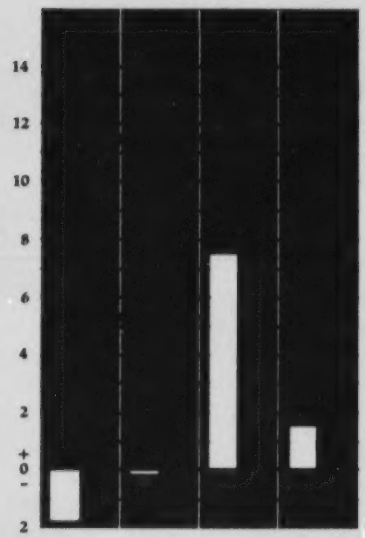
Figure 3.4 Growth of developing countries' merchandise exports, by destination, 1973–77[a]

(average annual percentage change, 1970 prices)



a. Country groups correspond to UN classification. Developing countries include capital-surplus oil exporters; industrialized countries include South Africa and most of Southern Europe.

the bias in favor of producing for the domestic market at an early stage of industrialization. That resulted both in a surge of export-led growth and in rapid and efficient growth in production for the domestic market—illustrating the strong underlying complementarities between the two.

SOME POSSIBILITIES FOR EXPANDING EXPORTS. The industrialized countries' market for finished manufactures offers developing countries the biggest scope for expanding exports. But they have opportunities for raising exports in other areas as well.

- Processed primary products. Primary producers face more serious export constraints than countries exporting manufactures. For many of them, processing their primary products offers a way of increasing the value of export earnings. For some primary products, the potential gains from increased processing can be exaggerated: some stages of processing certain commodities (for example, nickel and bauxite) are highly capital- or energy-intensive; others (for example, some edible oils) can cost less to transport in their unprocessed form. This does not necessarily mean that such processing activities are unsuitable for a developing country, but in these cases a more careful evaluation of the costs and benefits is required.

The decision to do more processing, however, is seldom in the hands of developing countries alone. The tariff structures of industrialized countries typically impose low (or no) duties for unprocessed primary products; but in many cases these rise progressively with the degree of processing (often to high levels). Unfortunately, this protects advanced stages of processing in the importing countries and inhibits exports of processed products from developing countries. Another brake on processing is that transport charges for processed products, where set by "conferences" of shipping firms, may not reflect genuine differences in the costs of carrying processed rather than raw materials. The location of processing activities is also influenced by the policies of transnational corporations.

- Trade between developing countries. Recent growth in "south-south" trade has been robust, and the outlook is promising. Developing countries' exports of both manufactures and nonfuel primary products to each other have been growing faster than they have to industrialized countries (see Figure 3.4). UN data (in which developing countries include capital-surplus oil exporters but exclude the semi-industrialized nations of Southern Europe) show that trade between developing countries accounted for barely more than a quarter of the increase in their manufactured exports during 1963–73, but almost half in 1973–77.

Most of such trade in manufactures is from more- to less-industrialized developing countries, or between adjacent countries that are not otherwise major exporters of manufactures. In the composition and characteristics of the products, south-south trade differs significantly from developing countries' manufactured exports to industrialized countries; in particular, it is more skill- and capital-intensive, with a higher proportion made up of engineering and chemical items (see Table 3.3). Trade in capital goods, including turnkey plants, is expanding very rapidly; but its value is still small.

Regional integration schemes offer a means for expanding south-south trade, but experience has been mixed. They often lead to

Table 3.3 Product composition of developing countries' merchandise exports to industrialized countries and other developing countries, 1977[a]

(percent)

Product group	*To industrialized countries*	*To developing countries[b]*	*Share of product group going to industrialized countries*
Machinery and transport equipment	19.9	30.2	53.5[c]
Textiles	10.2	16.3	48.4
Clothing	23.1	6.2	85.3
Chemicals	7.4	11.6	50.3
Iron and steel	3.0	5.1	49.6
Other manufactures	36.4	30.6	67.2
Total	100.0	100.0	62.4

a. UN classification (South Africa and most of Southern Europe are included in industrialized countries).

b. Includes capital-surplus oil exporters.

c. About 80 percent for electronics and electrical machinery; much lower shares for other products.

inward-looking policies, with high protection and low overall trade growth. But they could play a bigger role if properly designed and implemented. One promising avenue for improving the benefits from regional cooperation is to coordinate large-scale investments to avoid excess capacity (as members of ASEAN—the Association of South-East Asian Nations—have begun to do). But the main vehicle for expanding south-south trade is more likely to be those general policies that liberalize developing countries' import regimes and strengthen their export capabilities (for example, by expanding export credit and insurance facilities).

Capital flows

The links between the growth projected for developing countries and the capital flows required to sustain it received close attention in Chapter 2. The projected capital inflow to developing countries reflects judgments both about the availability of finance and the amounts the countries will want to borrow. But the flows that in fact materialize will be determined by savings and investment behavior in the industrialized countries and the capital-surplus oil exporters—and specifically on how much of their saving they choose to invest in the developing world.

This choice cannot be forecast with precision. The High case described in Chapter 2 requires aid and commercial capital from industrialized countries totaling about 0.5 percent of their GNP in 1990. By historical standards, this is not a large amount: it was 0.8 percent of their GNP in 1970 and still about 0.5 percent in 1975.

It implies, however, a substantial turnaround from 1980, when the industrialized countries themselves are likely to have a net inflow of capital (before official transfers) of about 0.5 percent of GNP—the counterpart of their current account deficit. Moreover, by 1990 much of the projected net capital inflow to developing countries would be needed to meet interest payments on loans. The share of gross lending that is available for buying imports and adding to reserves would fall sharply during the 1980s (see Figure 3.5).

Clearly, the uncertainties in these projections are high. Considerably more resources could be available to developing countries over the decade, and the result could be more growth. But it looks as though their capital inflow will be relatively modest in the 1980s, because of constraints both on their capacity to borrow and on the supply of funds.

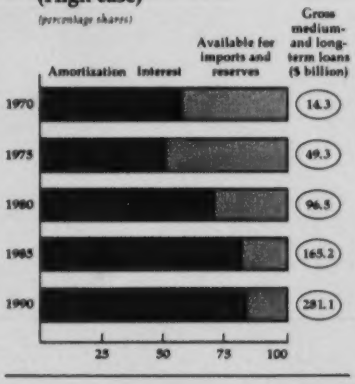
Factors affecting borrowing decisions

In general, the oil exporters face few financial constraints on their growth. Their major challenge (especially if the real price of oil continues to rise throughout the 1980s) is to use their oil revenues efficiently and not to exceed their capacity for absorbing investment. If they succeed, they will not need much foreign capital over the next five years or so. For major borrowers (such as Algeria or Mexico) this means that debt-service ratios will tend to decline despite strong economic growth.

Later in the decade, however, their position will change. The initial surge of revenues from the oil price rises of 1979–80 will have been digested; their ability to absorb more foreign investment productively will have risen. With oil providing them with a strong credit standing, the oil exporters could choose to finance further rapid growth by more foreign borrowing.

The position of the oil-importing developing countries is altogether different. In 1978 net oil imports (for energy uses) cost them $30 billion; in 1980 the same amount of imports would cost them about $65 billion. Their potential financing gap is widened further by slow growth in the industrialized countries, as a result of which their exports in 1980 could be about $6 billion lower than they might otherwise have been. In the short-term this means they will run higher current account deficits than in earlier years for any given rate of growth.

Figure 3.5 Developing countries' use of borrowed funds, 1970–90 (High case)



In these circumstances the policy options of the low-income oil importers are limited. They cannot borrow much capital on commercial terms, nor would it be prudent to do so. Their growth rates depend essentially on three factors: their own efforts to raise investment and saving; the availability of concessional finance; and how efficiently they use domestic and foreign resources. Without much more aid (beyond the increases currently projected), GNP per person in these countries is unlikely to grow faster than 1.7 percent a year in the first half of the 1980s.

The hardest decisions lie with the middle-income oil importers, for whom prudence will have to remain the watchword. In the short-term (perhaps until the end

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of 1981), they can resort to the temporary expedients of compressing imports and running down inventories—and in some cases using foreign exchange reserves (which were boosted by heavy borrowing in 1977–78). These measures will not prevent external deficits from rising, so more finance will be needed to maintain growth, even at the comparatively low rates of 1977–80.

But these countries may find their options increasingly restricted by a key constraint—their creditworthiness for larger and larger amounts of borrowing on commercial terms. This means not only creditworthiness as perceived by lenders, who may be willing to continue to lend to countries that have demonstrated an ability to manage their debt. Developing countries themselves must determine how much they will benefit from continued heavy commercial borrowing—allowing for their existing levels of debt and debt-servicing obligations, their uncertain export prospects and the likely return on additional investment. Some countries have already run into debt-servicing difficulties. In the absence of more official finance, the wise policy for some oil importers may be to borrow less and accept slower growth in the near term, while current account deficits are reduced and debt-servicing capacity and creditworthiness are strengthened.

Countries that can finance higher deficits and more rapid growth will also have to take steps to restructure their domestic economies and their external payments. They, too, will be faced with the need to raise exports rapidly, to use imports efficiently, to control domestic expenditure and inflation and to invest productively so that their debt-servicing ability and creditworthiness will not be impaired. A lesson that has been learned from the 1970s is that foreign capital—especially on commercial terms—cannot substitute for structural adjustment but can ease it.

The outlook for capital availability

To meet their needs in the 1980s, developing countries will seek finance from private sources (mainly commercial banks, but also bonds and direct investment) and from official sources, both on concessional and on market terms.

OUTLOOK FOR CAPITAL FROM COMMERCIAL BANKS. Despite the increased liquidity of the international banking system, arising from the surpluses of the capital-surplus oil exporters, developing countries will find it harder to maintain rapid growth in borrowing in the 1980s than they did in the 1970s. Apart from the considerations of creditworthiness already discussed, they can expect greater competition for funds and direct constraints on bank lending. These factors are likely to affect borrowing more in the next few years than over the whole of the decade.

- Increased competition. Developments in the 1970s have highlighted the need for heavy investment in the industrial economies, to overcome structural weaknesses. The increased cost of energy provides a strong incentive for governments to stimulate both public and private investment in energy programs. Investment is thus unlikely to be compressed much further, even in the short-term when demand will be depressed. Unless savings rates rise sharply, the industrialized countries are not likely to eliminate their current account deficits as rapidly as they did in 1974–78—especially as the real price of oil is expected to rise further in the 1980s.

Borrowing by industrialized nations is therefore likely to take a larger share of the surpluses of the capital surplus oil exporters than in previous years. In addition, the European centrally planned economies are likely to increase their demands on the capital market. They have been substantial borrowers in the past and (apart from the USSR) are net importers of energy with large debts to service. Finally, China seems poised to enter the market to finance ambitious modernization; over the decade China could become a sizable borrower.

While developing countries will therefore face more competition for loans in the 1980s, this does not mean that net lending to them will not increase. But the pace will be slower than in the past, and they will probably pay higher spreads (the margin over interbank deposit rates) than they have done in recent years. Interest rates themselves are likely to be higher as well—because of competing demands for funds, and because of restrictive monetary policies (in the next few years, at least) in industrialized countries.

From 1976 to 1978 the relative ease of monetary policy (especially in the United States) helped to boost international liquidity and thus facilitate the rapid expansion of commercial lending. The current stance of monetary authorities suggests that the 1980s will see tighter monetary policy to combat domestic inflation. But the dramatic fluctuations in interest rates over the past year underline the potential for error in this kind of prediction.

- Constraints on banks. The two previous *World Development Reports* have noted the potential constraints on commercial bank lending to developing countries that arise from portfolio concentration, higher debt-equity ratios and the associated concern of bank regulators. The danger to developing countries is not that banks will stop lending to them; rather that lending growth will slow be-

cause individual banks or banking groups may have to restrain their lending—and it will take time for new lenders to expand their activities.

The main factors behind these constraints still exist and may have become more acute. The rapid growth in lending by the main money center banks in the United States, the Federal Republic of Germany and Japan has meant that their capital base (shareholders' equity plus retained earnings) has failed to keep pace with lending. For the major US banks at least, how much they can lend in the future will be affected by how fast they can expand their capital. But this is difficult in a world of low spreads, high inflation (which increases loans and deposits relative to capital) and low prices for bank stocks. Second-tier banks that are comparatively underlent relative to their capital will probably expand their international lending. But because these banks are smaller, less experienced and probably more risk-averse than the large international lenders, developing countries are likely to pay more for their services.

In addition, some banks may wish to limit their exposure in some countries, since lending has been very concentrated (see Table 3.4). Regulatory agencies reinforce this caution: they have become increasingly concerned that foreign lending should not pose a threat to domestic banking systems. The effect of regulatory constraints on lending is not certain; it depends on the attitudes of regulators. In the past, banks have been free to interpret quite liberally the guidelines within which they operate. There have been moves to tighten control of international lending (for example, banks are increasingly having to report foreign and domestic operations on a consolidated basis); but the monetary authorities of many countries as well as the Bank for International Settlements are concerned to avoid undue constraints.

Table 3.4 Commercial bank claims on developing countries, 1976–79

Country[a] or group	*Percentage composition of amounts outstanding[b]*			
	1976	*1977*	*1978*	*June 1979*
Brazil	16.7	16.6	16.2	16.1
Mexico	16.2	13.4	11.4	11.7
Venezuela	6.2	6.0	6.9	7.5
Spain	6.6	7.6	6.5	6.5
Argentina	3.0	3.2	3.4	4.8
Subtotal, 5 largest borrowers	48.7	46.8	44.4	46.6
Next 5 borrowers	17.4	18.7	18.8	18.0
Next 10 borrowers	20.4	19.6	19.9	19.2
All others	13.5	14.9	16.9	16.2
All developing countries	100.0	100.0	100.0	100.0
Amount (billions of dollars)	110.5	151.1	203.9	221.5

Source: Bank for International Settlements and US Federal Reserve Board.
a. Rankings according to outstanding claims on June 30, 1979.
b. Excludes offshore banking centers—Bahamas, Barbados, Bahrain, Bermuda, Cayman Islands, Hong Kong, Lebanon, Liberia, Netherlands Overseas Territories, New Hebrides, Panama, Singapore and West Indies.

While these factors may cause lending to developing countries to grow more slowly, banks could be encouraged to lend more if spreads (between deposit and lending rates) widen. These spreads have a major influence on the profitability of lending; they have narrowed considerably since 1976 (see Table 3.5), but this trend seems to have been arrested in 1980. Since 1977 spreads have not been a major element in the cost of borrowing; at current levels of both spreads and interest rates, the latter should have more effect on the developing countries' willingness to borrow.

OUTLOOK FOR OTHER FORMS OF PRIVATE FINANCE. Both bonds and private direct investment offer some alternative to bank lending, though their main impact will be felt in the longer term.

- The bond market. Developing countries made few international bond issues before the end of 1975, when outstanding external bonds of 96 developing

Table 3.5 Average spreads over LIBOR for external borrowing, 1974–79[a]
(percentage points)

Item	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*
All developing countries	1.13	1.68	1.72	1.55	1.20	0.87
Typical industrialized country (France)[b]	0.58	1.42	1.09	0.92	0.63	0.36
Difference	0.55	0.26	0.63	0.63	0.57	0.51
Memo item						
LIBOR rate[c]	11.32	7.74	6.26	6.54	9.48	12.12

a. LIBOR is the London interbank offered rate, the rate charged by banks in London for dealings with each other.
b. Spreads reflect the credit standing of the borrower as well as market costs. This explains the very low difference in 1975.
c. Calculated as an annual average from monthly averages for the Eurodollar bid (deposit) rate plus one-eighth of a percent.

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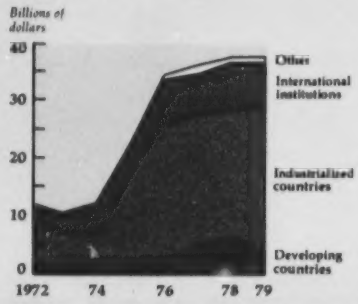
countries totaled an estimated $5.5 billion. (By comparison, the World Bank alone then had outstanding bond issues of $12 billion.) And only a handful of (mainly higher-income) developing countries had tapped the bond market: Israel accounted for 40 percent of outstanding bonds, while Argentina, Mexico and Spain together contributed a further 35 percent.

Issues by developing countries increased rapidly after 1975 (see Figure 3.6). They totaled $6.0 billion in 1978, of which $5.9 billion was the debt of middle-income countries. But their share of a slow-growing (if turbulent) market for international issues turned down sharply in 1979, to $3.9 billion (compared with issues by the international organizations of $8.3 billion).

Over time, bond issues should become more important as a source of funds for developing countries. But the bond market is a conservative one in which investor acceptance is acquired only slowly; borrowers must approach the market cautiously until they establish sound reputations. This suggests that in the foreseeable future bonds will not substitute to any great extent for commercial bank lending.

This conclusion is reinforced by the regulations imposed on bond transactions in many countries. These regulations do not discriminate among borrowers; they are intended to protect national investors and currencies. But their effect is to favor established borrowers and to make markets inaccessible for inexperienced borrowers. For example, the Securities and Exchange Commission imposes strict disclosure requirements on public offerings in the US bond market that new borrowers often find difficult to satisfy. The United States and most European countries restrict the foreign bond portfolios of some types of institutional investor. And in practice a foreign borrower must make a successful public offering in another foreign bond market before it can enter the Japanese market. Governments and regulatory agencies could help developing countries by improving their access to bond markets, but quick results cannot be expected.

Figure 3.6 International bond issues, 1972–79



• Direct foreign investment. Direct investment could provide more capital to developing countries, with the capital-surplus oil exporters playing an increasingly important role. But in the short-term its potential is limited—partly because many projects take so long to come on stream, but also because developing countries are often concerned about foreign ownership and influence in their economies. Because the risks are high, the foreign investor typically requires high returns on capital (and in some cases substantial control of the enterprise). Any major increase in direct investment is likely to need greater agreement between governments about the role of transnational corporations. Barring that, direct investment over the next 5 to 10 years would probably grow at only about 3 percent a year in real terms.

OUTLOOK FOR OFFICIAL CAPITAL. Given this relatively uncertain outlook for private capital flows, official agencies will have to help secure the financing needs of the developing countries (especially the low-income oil importers), as they did in 1974. Finance from the centrally planned economies is modest and probably will remain so. Official capital from the industrialized countries and the capital-surplus oil exporters—together with the international financial institutions they support—will effectively determine the capital inflow to low-income countries and will supplement the middle-income countries' private borrowing.

• Prospects for concessional assistance. The aid projections that underlie the High case are shown in Table 3.6. They show aid from DAC donors reaching no more than 0.36 percent of projected GNP in 1985 and 1990. Measured against the target (0.7 percent of GNP) established by the United Nations for the Second Development Decade, the performance of DAC donors has been most disappointing. Real growth from 1965 to 1979 averaged only 1.5 percent a year. Excluding countries that have already reached the UN target (Denmark, Netherlands, Norway and Sweden), the aid performance of most of the remaining 13 DAC members deteriorated from 1975 to 1979. There is little assurance of significant progress in response to the Brandt Commission's call for rapid growth in aid, and the evident needs of developing countries.

Recent actions give cause for concern. The aid cuts announced by the British Government could cause their aid to fall to 0.38 percent of GNP by 1985, from the 0.48 percent average for 1977–79. Aid bills continue to face difficulties in the US Congress, suggesting that support from the biggest donor is likely to remain the lowest, relative

to GNP, of all large industrial nations. Some countries, such as Japan and the Federal Republic of Germany, have indicated their intent to continue their recent improvements in aid flows. Nevertheless, achievement of the projected overall increase (a tripling of aid in nominal terms, or 4 percent real growth throughout the decade) is far from certain; it depends on strong growth in industrialized countries as well as on maintenance of their aid shares.

Economic difficulties in the industrialized countries are an important—but not a sufficient—reason to explain their lack of support for aid. Most governments simply have not found it expedient to expand foreign assistance while restricting domestic spending. The failure even to maintain the share of aid in GNP will have serious long-term economic and political consequences for the developing countries—particularly for the poorest among them. The inadequate provision for development aid contrasts starkly with the sums devoted by all countries to military expenditures (see box).

Prospective aid from OPEC members is also uncertain. The Arab countries that are the major donors have been generous in their support of developing countries in the past. In the peak year, 1975, the oil producers together gave 2.7 percent of their GNP as aid, while the major Arab donors —Saudi Arabia, Kuwait, Qatar and the United Arab Emirates— gave proportionately much more (a range of 5 to 15 percent of their GNP). By 1978, however, aid in real terms was only about 60 percent of what it had been in 1975; estimates for 1979 indicate a further real decline.

The increase in oil revenues should permit a substantial increase in the oil producers' aid in 1980 and beyond. OPEC donors have not yet agreed to boost substantially their aid through multilateral channels; much therefore depends on the expansion of the national programs of the major bilateral donors—the four mentioned above, plus Iraq and Libya. Iraq has become the third largest OPEC donor in absolute terms, partly because of its interest-free loans to poorer countries to compensate them for higher oil prices.

• Improving aid to benefit the poorest. To maintain energy imports at their 1978 levels, the poorest oil-importing countries need extra aid of about $2.2 billion in 1980 (for 36 low-income countries). This could be provided by increasing aid from DAC and OPEC donors by only 8 percent. Yet even this additional aid will not be made available without strong efforts; and it would not compensate for the losses in trade and aid from the slowdown in world growth.

Besides expanding aid, donors should redistribute it toward the poorest nations. Some donors send a comparatively high proportion of their aid to the middle-income countries. In 1978 DAC donors distributed 38 percent of their bilateral aid to low-income countries (see Table 3.7) and 52 percent to middle-income countries (data on the country distribution of the remaining10 percent are unavailable). Although only seven DAC donors currently give less than 55 percent of their bilateral aid to low-income countries, this group includes the four largest donors—France, the Federal Republic of Germany, Japan and the United States. Bilateral aid to the low-income countries from OPEC

Military spending

Although data are imprecise and estimates vary widely, one estimate puts global military expenditure at more than $400 billion in 1977. The proportions of GNP that industrialized and developing countries devoted to it were rather similar (see table). For industrialized countries, the outlay on arms was 17 times higher than that on aid. And for developing countries, it was one-and-a-half times more than on education and health combined.

Public expenditures on defense, aid, health and education, 1977
(percentage of GNP)

Country group	*Defense*	*Aid*	*Health*	*Education*
Industrialized countries[a]	5.6	0.33	3.0	5.9
Developing countries[b]	5.9	n.a.	1.0	2.7

a. Include centrally planned economies.
b. Include centrally planned economies and capital-surplus oil-exporters.
Source: World Military Expenditures and Arms Transfers 1968–77 (US ACDA)

Table 3.6 Aid flows to developing countries and multilateral institutions, 1975–90 (High case)
(billions of dollars)

Country group	*1975*	*1978*	*1979[a]*	*1980*	*1985*	*1990*
DAC[b]	13.8	20.0	22.3	25	44	69
(As percentage of GNP)	(.36)	(.35)	(.34)	(.36)	(.36)	(.35)
OPEC	5.5	4.3	4.7	5	10	15
(As percentage of GNP)	(2.71)	(1.35)	(1.28)	(n.a.)	(n.a.)	(n.a.)
Centrally planned economies and other[c]	0.6	1.1	1.0	1	2	2
Total	19.9	25.4	28.0	31	56	86

a. Preliminary figures.
b. Reporting by DAC members has changed to a uniform system (see the technical notes for Table 16 of the World Development Indicators). Under the old system of reporting, the 1975 figure was $13.6 billion, the 1978 figure $18.3 billion.
c. Includes OECD countries that are not members of DAC.

donors has fallen since 1976 and there is scope for redistribution. Flows from multilateral institutions, by contrast, are concentrated more on the poorest countries.

Close examination suggests, however, that political factors will inhibit a rapid redistribution of concessional aid. France and the United States, in particular, maintain strong political ties with some higher-income aid recipients. Nonetheless, there is an extremely strong case for donors to provide at least 50 percent of their aid to low-income countries; this redistribution is built into the capital-flow projections underlying the High case in Chapter 2. If it fails to take place, total aid flows from DAC members will have to be very much higher ($85–90 billion in 1990 rather than the projected $69 billion) to achieve the projected bilateral flow to the low-income nations.

- Official capital on market terms. The other major source of funds for developing countries is official capital on nonconcessional terms (that is, with a grant element of less than 25 percent); this is provided principally through official export credits, government-to-government lending, the World Bank and the regional banks and the International Monetary Fund. While it offers limited support for the low-income countries, for middle-income countries it has been and could remain a very important supplement to private capital.

Official export credits are difficult to separate statistically from associated officially supported private flows. Together, however, they have grown rapidly over the past two decades; in 1978 net disbursements from DAC members to developing countries were more than $13 billion (exceeding net bilateral aid from the DAC countries for the first time, and considerably above private direct investment of $11 billion). Continuing growth is likely, but the limitations on what is financed by official export credits (usually, only specified capital goods) restrict their ability to compensate for slow growth of other capital.

Table 3.7 Distribution of DAC donors' bilateral official development assistance, 1970–78

	Percentage shares				
Country group	*1970*	*1975*	*1976*	*1977*	*1978*
Low-income countries	47	44	38	35	38
Middle-income countries	44	46	51	56	52
Unallocated by country	9	10	11	9	10
Total	100	100	100	100	100

Government-to-government lending affords a more direct means of assisting developing countries. The greatest potential seems to lie with OPEC governments, which provided $2.5 billion a year in 1975–76 (mainly on market terms to low-income countries) compared with their aid of $5.5 billion a year. Current and projected surpluses of the capital-surplus oil exporters could support a much larger volume of such lending.

- The role of multilateral institutions. While the machinery exists to assist developing countries in the difficult times ahead, the international agencies are hampered by a shortage of resources, especially to finance longer-term adjustment. Most of their proposed major capital increases and replenishments have run into authorization or appropriation delays.

The Inter-American Development Bank's capital increase (agreed to in 1979) was to sustain nominal lending growth of about 14 percent a year, but legislative ratification has been delayed. The Asian Development Bank's current replenishment period extends to 1982, during which time both concessional and nonconcessional lending in nominal terms are expected to grow 12 percent a year. The African Development Bank, despite the expansion of resources resulting from the admission of nonregional members in 1980, will be similarly constrained. The aid program of the European Community under the Second Lomé Convention, and the United Nations Development Program will increase at a somewhat slower rate.

Higher inflation will erode the real value of capital increases and replenishments. The capital increase for the World Bank was intended to support 5–6 years of lending growing at a nominal rate of 12 percent a year with an implied inflation of 7 percent a year (at present, that inflation rate looks a distinct underestimate). The sixth replenishment of IDA (a proposed $12 billion) was planned to provide for an annual real increase in loan commitments of 5 percent for fiscal years 1981-83 (July-June). Again, however, the real resource flow will be eroded by inflation.

Against this backdrop, the Board of the World Bank has accepted a proposal that will provide loans to support developing countries' structural adjustment programs. But agreement has not yet been reached that these loans will be in addition to the previously planned lending programs. Over the decade, unless the international agencies get more funds, they will only be able to reallocate funds already earmarked (and allowed for in the High-case projections

in Chapter 2). Ways of increasing their lending capacity should be considered, within the constraints of the capital available to them from the industrialized countries.

- The IMF. The seventh quota increase is expected to become effective in 1980, raising the quotas of the oil-importing developing countries to around $16 billion. And in response to members' needs for financial assistance to ease their current adjustment problems, the Fund is studying initiatives designed to raise the amount of finance it offers; to extend credit for longer periods; and to emphasize its role as a supplier of finance. The maturity of loans under an extended arrangement has already been lengthened from 8 to 10 years to encourage a smooth transition to lower deficits. For countries that have severe deficits the IMF has been willing, in some instances, to provide financial support amounting to six times their quotas.

More multilateral finance is needed

From 1970 to 1978 multilateral flows on nonconcessional terms grew 11 percent a year in real terms (concessional flows grew 12 percent). On present plans, they are likely to grow at less than half these rates between now and 1990. But there remains a clear need for additional resources to allow the developing countries to adjust to changed external conditions and at the same time maintain acceptable growth. Without such resources, the chances of successful adjustment in 1980–85 will be much reduced; consequently, the recovery projected for 1985–90 would be weakened and longer-term development goals jeopardized.

Part II Poverty and human development

An unfavorable world economic environment casts shadows over the lives of people in developing countries; the poorest in particular face acute hardships. Part I of this *Report* has stressed the steps that developed and oil-producing countries in particular must take to improve the international environment for growth—without which, efforts to help the poor will be of limited avail. Part II concentrates on certain other measures to reduce absolute poverty.

In the 1970s it was increasingly recognized that economic growth alone would not reduce absolute poverty at an acceptable speed. So those involved with development—including the ILO and the World Bank—gave attention to four different, though largely complementary, strategies: increasing employment, meeting basic needs, reducing inequalities in income and wealth, and raising the productivity of the poor.

This part of the *Report* draws on all these approaches to overcoming poverty. But it combines them with a strong concern for growth. And it integrates them with a related strand of thinking—human resource development, here called human development to emphasize that it is an end as well as a means of economic progress.[1] Human development encompasses education and training, better health and nutrition, and fertility reduction.

The focus is on *absolute* poverty—a condition of life so characterized by malnutrition, illiteracy and disease as to be beneath any reasonable definition of human decency. Yet within a particular society at a particular time, poverty is often (and for many purposes should be) defined *relative* to average living standards. It would be wrong, for example, to use the same poverty line in appraising policy, say, in Argentina and Bangladesh. Relative poverty is also important because the distribution of assets, incomes and power has a profound impact on prospects for reducing absolute poverty. And reducing relative poverty is regarded as important in itself in most countries.

Despite these links between absolute and relative poverty, there are fundamental differences. Equal sharing of poverty or of low life expectancy is not the purpose of development. Conversely, some policies that benefit large numbers of poor people have an ambiguous effect on the overall distribution of income and may even make it more unequal. And while countries differ considerably in the priority they attach to distributional objectives, there appears to be unanimity on the need to reduce, and at some point eliminate, absolute poverty.

The role of human development in alleviating poverty has been debated for several hundred years. In Europe in the 16th to 18th centuries, there was a vigorous dispute between those who believed that education would make the poor more productive and better citizens, and those who believed that it would make them challenge the established order. (With hindsight, both were clearly right.) Political as much as economic considerations impelled the United States and Japan toward universal primary education in the 19th century.

Economists, meanwhile, have seldom given prominence to the quality of the labor force, especially in their formal models. In the 1950s and early 1960s, there was a wave of optimism about the contribution of education to economic development. Partly for want of quick and obvious results, enthusiasm then waned. But research continued—and the chapters that follow draw together its results.

The case for human development is not only, or even primarily, an economic one. Less hunger, fewer child deaths and a better chance of primary education are almost universally accepted as important ends in themselves. But in a world of tight budgetary and manpower constraints, the governments of developing countries must ask what these gains would cost—and what the best balance is between direct and indirect ways of achieving them.

1. Earlier *World Development Reports* have covered other aspects of development policy. In 1978 the central topic was the problems and prospects of low-income Asia and Sub-Saharan Africa. In 1979 industrialization, employment and urbanization were the main issues addressed.

4 Poverty, growth and human development

The poor are a mixed group. Some cope reasonably well; others are on the margin of survival. Their well-being can fluctuate widely: the marriages and ceremonies after the harvest are in stark contrast to the hunger and illness that often precede it. A good crop with a new seed, or the chance to work on a nearby road project, may push a poor farm family's income to the point where they can buy a plow with a metal blade or some clothing for their children. But two years of inadequate rain, or a bout of illness, may cost them their land or their livestock—a degree of vulnerability that understandably makes for caution and aversion to risk.

The poor have other things in common, apart from their extremely low incomes. A disproportionate number of them—perhaps two in five—are children under 10, mainly in large families. More than three-quarters of them live in (often very remote) rural areas, the rest in urban slums—but almost all in very crowded conditions. Many poor families own a small piece of land, some animals or some tools. But both they and other poor people live mainly by working long hours —men, women and children alike —as farmers, vendors and artisans, or hired workers.

As much as four-fifths of their income is consumed as food. The result is a monotonous, limited diet of cereals, yams or cassava—with a few vegetables and in some places a little fish or meat. Many of them are malnourished to the point where their ability to work hard is reduced, the physical and mental development of their children is impaired, and their resistance to infections is low. They are often sick—with tropical diseases, measles and diarrhea, and cuts and scratches that will not heal. Complications of childbirth are a common cause of death. Of every 10 children born to poor parents, two die within a year; another dies before the age of five; only five survive to the age of 40.

The great majority of poor adults are illiterate; their children, though having a much better chance of attending school than in the past, usually do not complete more than a year or two. Unable to read a road sign, let alone a newspaper, their knowledge and understanding remain severely circumscribed. Yet they learn about the possibility of a better life from direct observation, from friends and relatives, and perhaps from small improvements in their own circumstances; and they hope that their children will somehow be able to climb out of poverty.

Dimensions of poverty

It is difficult to measure the extent of poverty. To begin with, absolute poverty means more than low income. It also means malnutrition, poor health and lack of education —and not all of the poor are equally badly off in all respects. There is also room for disagreement about where to draw the line between the poor and the rest, and about the correct way to calculate and compare incomes and living standards at different times and in different places.

To compound these difficulties, the data are inadequate. Household surveys, if they exist, sometimes underrepresent the poor. Very few follow the fortunes of individuals and families through time, or disaggregate the household to examine the well-being of women, children and the elderly. Nor is direct observation necessarily a reliable basis for generalization, especially in the countryside, where many of the poor are beyond the gaze of the casual visitor to villages and rural development projects—away from the roads, away from the markets and project sites, or on the outskirts of the villages.

Despite all this, no one seriously doubts that a very large number of people are extremely poor. Taking as the cutoff a level of income based on detailed studies of poverty in India, the number of people in absolute poverty in developing countries (excluding China and other centrally planned economies) is estimated at around 780 million. In 1975 about 600 million adults in developing countries were illiterate; and only two-fifths of the children in these countries currently complete more than three years of primary school. In 1978, 550 million people lived in countries where the average life

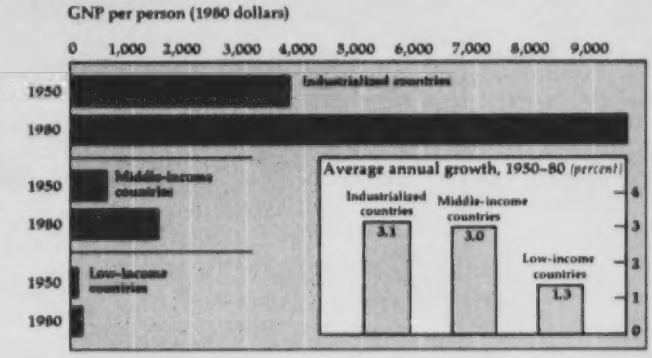
Figure 4.1 Three decades against poverty

Income

GNP per person[a] (1980 dollars)	*1950*	*1960*	*1980*
Industrialized countries	3,841	5,197	9,684
Middle-income countries	625	802	1,521
Low-income countries	164	174	245

Average annual growth (percent)	*1950–60*	*1960–80*
Industrialized countries	3.1	3.2
Middle-income countries	2.5	3.3
Low-income countries	0.6	1.7

a. Excludes all centrally planned economies

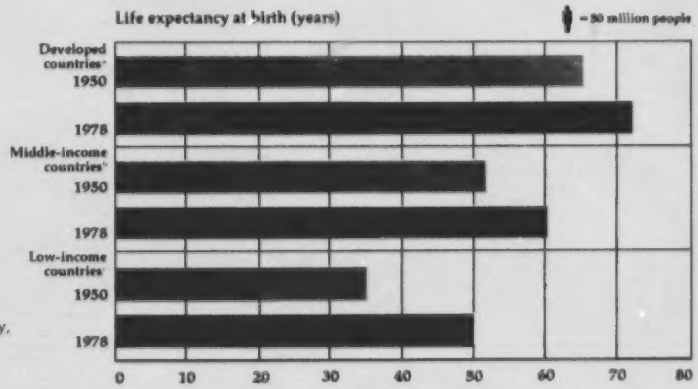


Health

Life expectancy at birth (years)

	1950	*1960*	*1978*	*Increase, 1950–78*
Industrialized countries	66.0	69.4	73.5	7.5
Middle-income countries	51.9	54.0	61.0	9.1
Low-income countries	35.2	41.9	49.9	14.7
Centrally planned economies[c]	62.3	67.1	69.9	7.6

a. Includes Bulgaria, Czechoslovakia, German DR, Hungary, Poland, Romania, USSR
b. Includes Albania, Cuba, North Korea, Mongolia
c. Excludes China

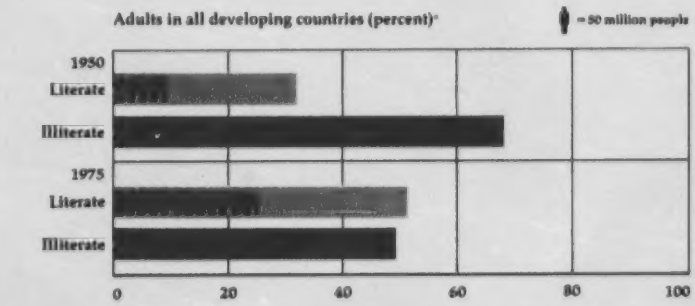


Education

Adult literacy rate (percent)

	1950	*1960*	*1975*
Industrialized countries	95	97	99
Middle-income countries	48	54	71
Low-income countries	22	29	38
Centrally planned economies	97	98	99

a. Excludes centrally planned economies

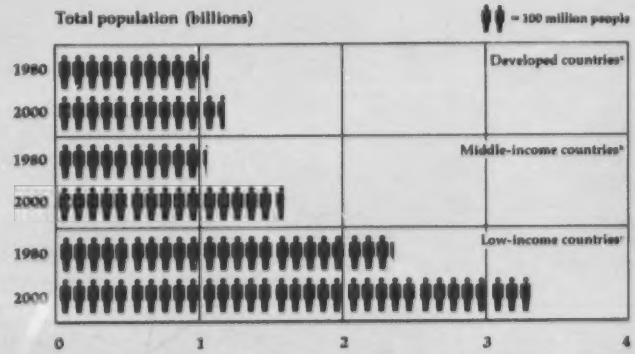


Population

Average annual percentage growth

	1950–60	*1960–70*	*1970–80*
Industrialized countries	1.2	1.0	0.7
Middle-income countries	2.4	2.5	2.5
Low-income countries	1.9	2.5	2.3
Centrally planned economies	1.9	1.7	1.3

a. Includes Bulgaria, Czechoslovakia, German DR, Hungary, Poland, Romania, USSR
b. Includes Albania, Cuba, North Korea, Mongolia
c. Includes China



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expectancy was less than 50 years, 400 million in countries where the average annual death rate of children aged one to four was more than 20 per 1,000—20 times that in the industrialized countries.

Nor is there any serious disagreement about who the poor are. Half of the people in absolute poverty live in South Asia, mainly in India and Bangladesh. A sixth live in East and Southeast Asia, mainly in Indonesia. Another sixth are in Sub-Saharan Africa. The rest—about 100 million people—are divided among Latin America, North Africa and the Middle East. With the partial exception of Latin America (where about 40 percent are in the towns) the poor are primarily rural dwellers, overwhelmingly dependent on agriculture—the majority of them landless (or nearly landless) laborers. Some minority groups—for example, the Indians in Latin America and the scheduled castes in India—are also overrepresented among the poor. And there is a tendency for absolute poverty in particular places, families and social groups to persist from generation to generation.

Three decades of poverty reduction

In aggregate, however, considerable progress has been made in reducing the incidence of poverty over the past 30 years (see Figure 4.1). Progress would have been greater still but for the dramatic growth of population, which has doubled the number of people in the developing world since 1950 and has begun to slow down—though as yet slightly—only since the mid-1960s.

Since 1950 income per person in the developing world has doubled. But in low-income countries, the average increase has been half that, and in both low- and middle-income countries the incomes of the poor have grown more slowly than the average. The *proportion* of people in absolute poverty in developing countries as a group is estimated to have fallen during the past two decades (though probably not in Sub-Saharan Africa in the 1970s—see Chapter 2). But because population has grown, the *number* of people in absolute poverty has increased.

There has also been progress in education. The proportion of adults in developing countries who are literate is estimated to have increased over the past three decades from about 30 percent to more than 50 percent; the proportion of children of primary-school age enrolled in school rose from 47 percent in 1960 to 64 percent in 1977. These advances have been shared by most countries and regions, including those that initially were furthest behind, such as Sub-Saharan Africa. But the quality of schooling remains low in many countries; and because of population growth, there has been an increase of about 100 million in the absolute number of illiterate adults since 1950.

The most striking advances against poverty have been in health. Average life expectancy in middle-income developing countries has risen nine years over the past three decades. In low-income countries, the increase has been even greater—15 years. But even though infant mortality rates (which are a major determinant of life expectancy) have fallen substantially in developing countries since 1950, there now are so many more children born that the absolute number of infant deaths probably has not declined.

Another way of viewing the progress of the past three decades is to compare the developing with the industrialized countries. The gap in income per person between them has widened, even in proportional terms (though in the case of the middle-income countries only slightly). But the gaps in education and health have narrowed —by 15 percentage points in adult literacy and five years in life expectancy.

Poverty and growth

Most poor people live in poor countries. Whether absolute poverty is measured by low income, low life expectancy or illiteracy, there is a strong correlation between the extent of poverty in a country and its GNP per person (see Figure 4.2 overleaf). This suggests that the solution to poverty is economic growth. There is a great deal of truth in this proposition, but it needs to be carefully qualified.

First, comparing countries, the relation beween the extent of their absolute poverty and the level of GNP per person is (as the dispersion of points in Figure 4.2 shows) far from perfect. Because of differences in income distribution, the proportion of the population below the poverty line in 1975 was more than twice as high in Colombia as in South Korea, even though the average incomes of the two countries were close. Sri Lanka is a low-income country, yet the life expectancy of its people approaches that of the industrialized countries. Some middle-income countries, such as Morocco and the Ivory Coast, have literacy rates below those of the average low-income country.

Second, looking at changes over time within particular countries, the connection between growth and poverty reduction over periods of a decade or two appears inexact. There is general agreement that growth, in the very long term, eliminates most absolute poverty; but also that some people may (at least temporarily) be impover-

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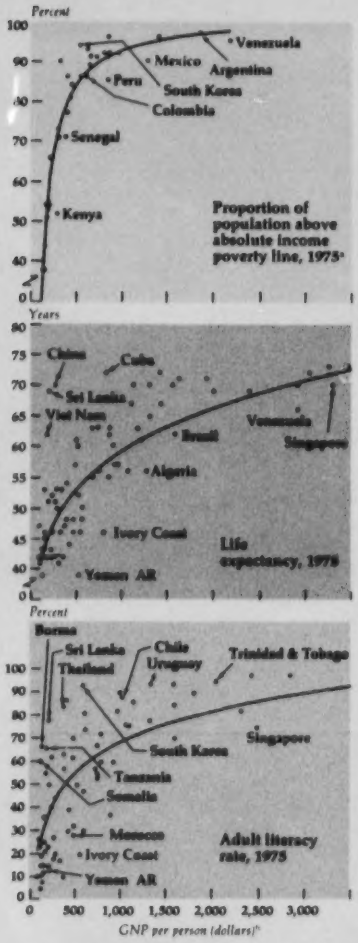
Figure 4.2 National income and national poverty



a. Absolute income poverty line is income of 45th percentile in India.
b. Refers to year specified in each section of figure, expressed in the prices of that year.

ished by development—as when a tenant farmer is displaced by his landlord's tractor or a shoemaker by mass-produced shoes. Because relevant data are sparse and unreliable, however, it remains a matter of dispute how consistently growth over comparatively short periods has reduced the proportion of the population in absolute poverty.

What is clear is that different countries have had different experiences. The proportion below the absolute poverty line apparently has not fallen in some slow-growing countries (including rural India between 1956 and 1974) or in some periods in faster-growing countries. But it appears to have fallen markedly over the past 25 years in several fast-growing countries (including Thailand and Yugoslavia) and in some slower-growing ones (including Costa Rica and Sri Lanka). The association between economic growth and improvements in education and health has also been imperfect.

Third, the connection between economic growth and poverty reduction goes both ways. Few would dispute that the health, education and well-being of the mass of people in industrialized countries are a cause, as well as a result, of national prosperity. Similarly, people who are unskilled and sick make little contribution to a country's economic growth. Development strategies that bypass large numbers of people may not be the most effective way for developing countries to raise their long-run growth rates.

The rest of this chapter looks more closely at some of the elements of absolute poverty and at policies to deal with it. Since economic growth (despite the qualifications) is crucial to reducing poverty, its causes will be considered. The focus then shifts to factors and policies that particularly affect the incomes of the poor. Under both headings the potential contribution of human development is examined.

Economic considerations and policies will predominate. But it is important to stress the contribution (over long periods) of social, political and cultural factors to the poverty of particular countries and particular groups. Nor should this chapter's emphasis on better education and health as a means to raise incomes detract from their tremendous importance as ends in themselves.

Sources of growth

Economic growth comes about in two ways, both of which can be powerfully influenced by government policy. One is building up a larger stock of productive assets and human skills. The other is increasing the productivity of these assets, skills, and the country's natural resources. This involves moving capital and labor between sectors, developing new institutions, inventing and introducing new techniques of production and new products, making better choices among existing techniques, and taking steps to cut costs and eliminate waste. Growth thus involves continuous change—it has aptly been described as a process of perpetual disequilibrium.

Natural resources

The natural resources of countries are not consistently correlated with either income levels or income growth. Some of the richest and most rapidly growing economies —Austria, Japan and South Korea, for example—have few natural resources; some well-endowed ones —Zaire, for instance—have remained poor.

Nonetheless, no account of the causes of national prosperity and poverty should overlook land, water, minerals, energy and climate. Many countries—among them Argentina, Australia, Saudi Arabia and the Soviet Union—owe a good part of their affluence to natural resources. Nor is it coincidental that most poor countries are in the tropics and, more particularly, that many of the poorest people in the world live in the arid and semiarid regions of Asia and Africa.

But the link between natural resources and income is affected by

population density (see page 39). It also depends on the availability of capital and skills and on the development strategy adopted. And it is very much a function of world demand and the state of technology. Malaysia's early progress was founded on tin for plating and rubber for automobile tires. Bangladesh's jute industry suffered from the invention of synthetic fibres (especially because, in contrast to Malaysia, little relevant research was undertaken). A technical breakthrough in "dry" farming would—perhaps more than any other feasible technical advance—transform the prospects of a large proportion of the world's poor.

Investment in physical capital

The accumulation of physical capital is a necessary and very important part of economic growth. The productivity of workers in industrialized countries is greater than in developing countries partly because they have more capital to assist them. Similarly, most of the innovations and structural changes that generate growth clearly require substantial physical investment—in roads, machines, inventories, irrigation systems and so on.

Developing countries that have invested a higher proportion of their output have on average grown faster, but the contribution of investment to growth has varied widely. Some, including the fast-growing East Asian countries, have managed to squeeze as much as half an extra unit of annual output from each extra unit of capital. Others, such as Ghana and until recently Uruguay, have invested to much less effect.

Part of the discrepancy is attributable to differences in the share of investment devoted to activities (such as housing) that do not contribute directly to production, but more to variations in the efficiency with which productive investment has been allocated and used. This efficiency has in turn depended on the availability of natural resources and skilled labor and on government policies toward agriculture, industry and foreign trade (discussed at length in the past two *World Development Reports*).

It has sometimes been suggested that income inequality is conducive to higher investment (since the rich save a larger proportion of their incomes than the poor). But in practice this relation is muffled by government and corporate saving and by variation across countries in incentives and attitudes to saving. High investment rates are observed both in countries with relatively unequal income distributions, such as Brazil and Kenya, and in countries with relatively equal distributions, such as China and South Korea. Low investment rates also appear compatible with income distributions that are both more unequal, as in Senegal, and less unequal, as in Burma.

Human resources

It has long been recognized that the qualities of a nation's people have an important influence on its prosperity and growth. This is not simply because better labor adds to output in the passive way that, say, more fertilizer or better machinery does. It is also because human beings are the source of ideas, decisions and actions on investment, innovation and other opportunities.

Technical, scientific and professional skills are clearly essential to producing many modern goods and services. Entrepreneurial and administrative abilities are vital in both public and private sectors. Less immediately obvious, but equally fundamental, are the skills, knowledge and attitudes of the great mass of ordinary workers, including small farmers and traders.

What governs the quality of human resources, and how can it be improved? There is no simple answer, no simple best policy. One important ingredient is practical experience. Another consists of the knowledge and attitudes that children acquire from their parents and from society at large. Then there are the many different kinds of formal education and training: general primary and secondary schooling, technical and vocational schooling, general and specialized higher education—all of which impart specific skills, enhance the ability to learn further and mold attitudes toward work and change.

Partly because measurement is difficult, the evidence is not complete—either on the contribution of human resources to production and growth, or on what determines their quality. But a lot of research has been done on the economic contribution of formal education. In all countries more educated people tend to earn more—to a degree that makes educational spending (especially for primary education and especially in developing countries) often appear an attractive investment (see pages 48–49).

Studies have also shown that primary schooling can contribute to the productivity of farmers (see page 48) and to industrial productivity. In addition, there is evidence that basic education can contribute to national growth (see box overleaf). Developing countries with higher literacy rates have tended to grow faster, even after allowances are made for differences in incomes and physical investment, and they have had higher physical investment rates.

The results of this research reinforce a body of less systematic observations, and some historical evidence, that formal education can aid economic development. The outstanding growth records of Japan and South Korea prob-

Human resources and growth: macroeconomic evidence

How can the effect of human resources on growth be assessed? The microeconomic studies of the effects of education, nutrition and health on the incomes and productivity of particular people and enterprises provide important evidence. So do the "growth accounting" exercises, which have in effect added up the results of microeconomic studies to measure the contribution of human resources to aggregate growth.

But microeconomic evidence is not enough. For example, it has sometimes been suggested that the higher earnings of more educated people are partly offset by indirect reductions in the earnings of less educated people—and thus that the microeconomic evidence overstates the effects of education on total (or average) income. Conversely, though, it has been suggested that the earnings of more educated people may understate their contribution to total production, innovation and growth.

It is thus important to complement the microeconomic evidence with studies that look directly at the relation between human development and aggregate growth. One way of doing this is through historical case studies. Another is by cross-country comparisons—looking at a large sample of countries to see whether those with better, or more rapidly improving, human resources have grown faster. Cross-country studies, however, must tackle two basic problems—in addition to shortages and inaccuracies of data, which are particularly severe for developing countries.

- Disentangling other influences. A correlation across countries between human resource indicators and growth may be generated—or obscured—by other factors (such as income) that influence one or more of the variables. Many of these other factors—such as income levels, investment rates and even some aspects of natural resources and climate—can be measured; their influence can be controlled for by multivariate statistical methods. Other relevant factors—culture and economic policies, for instance—cannot be so readily measured, and hence are difficult to control for.

This problem, however, can be substantially overcome by focusing on changes over time within countries, rather than on levels at a particular time. That eliminates the influence of factors (politics and institutions, say) that affect both the level of income and the level of human development in particular countries. Even then, though, the possibility remains that such unmeasured factors are influencing the rates of change in all the variables of interest. To reduce this risk, additional variables can be used to allow for, say, regional or cultural differences.

- Establishing the direction of causation. Even if it were possible to control for all other influences, the existence of a correlation between human resources and economic performance does not answer the question of which is causing which—especially pertinent, since there are reasons for believing that the causation flows in both directions.

One way of addressing this question is to look at the sequence of events. The table in this box, for example, compares literacy rates and life expectancy in 1960 with growth over the period 1960–77. It shows that the 10 fastest-growing developing countries started the period with literacy rates that were on average, despite substantial variation, 16 percentage points higher than would have been expected at their income levels. It also shows that the 10 developing countries with the highest life expectancy in relation to their income levels in 1960 subsequently attained growth rates that on average were 1.6 percentage points above those of all the developing countries for which data are available.

Literacy, life expectancy and growth

Top 10 countries ranked by growth of GNP per person	*Growth rate of GNP per person, 1960–77 (percent)*	*Literacy: deviation from norm, 1960[a] (percent)*
Singapore	7.7	..
South Korea	7.6	43.6
Hong Kong	6.3	6.4
Greece	6.1	7.5
Portugal	5.7	1.7
Spain	5.3	1.2
Yugoslavia	5.2	16.7
Brazil	4.9	8.6
Israel	4.6	..
Thailand	4.5	43.5
Average[b]: top 10 countries	5.8	16.2
Average[b]: 83 developing countries	2.4	0.0

Top 10 countries ranked by life expectancy in relation to income	*Life expectancy: deviation from norm, 1960[a] (years)*	*Growth rate of GNP per person, 1960–77 (percent)*
Sri Lanka	22.5	1.9
South Korea	11.1	7.6
Thailand	9.5	4.5
Malaysia	7.3	4.0
Paraguay	6.9	2.4
Philippines	6.8	2.1
Hong Kong	6.5	6.3
Panama	6.1	3.7
Burma	6.0	0.9
Greece	5.7	6.1
Average[b]: top 10 countries	8.8	4.0
Average[b]: 83 developing countries	0.0	2.4

a. Deviation from expected value derived from equations relating adult literacy and life expectancy to GNP per person for all developing countries. For example, in the top part of the table, South Korea's literacy rate in 1960 was 43.6 percentage points higher than expected for a country at its income level.
b. Unweighted mean.

Another (complementary) approach is to use "simultaneous equations" techniques to estimate the relations in both directions at once, thus trying to identify the strength and characteristics of each while allowing for the existence of the other.

As part of the background work for this *Report*, the methods outlined above have been applied to the recently enlarged and improved data base from which the World Development Indicators are drawn (see the studies by Hicks and Wheeler mentioned in the bibliographical note). The purpose of these studies is primarily to double-check at the macroeconomic level the results derived from the microeconomic and experimental work discussed in Chapter 5. Thus they attempt to measure not only the effects of human development on growth, and of growth on human development, but also the effects of the various human development indicators—education, health, nutrition and fertility—on each other.

The results, and especially the estimated magnitudes of the effects, are not beyond dispute. But in general they reinforce the other evidence. Among the most clear-cut results are these: (1) increases in literacy contribute both to increased investment and (given the level of investment) to increases in output per worker; (2) literacy, as well as nutrition and income, affects life expectancy; and (3) variations in life expectancy, literacy, income and the strength of family planning programs explain between them most of the variation in fertility rates across countries.

The impact of health (measured by life expectancy) and nutrition on economic growth is less clear-cut. Although life expectancy on its own, controlling for income, appears to have a positive effect on both investment and output per worker, these effects largely disappear when other variables that influence life expectancy are introduced. Increases in average calorie supply appear to have a clear, positive effect on growth; but the possibility cannot yet be ruled out that this may reflect the effect not of nutrition but of agricultural output.

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ably could not have been achieved without their distinctively early mass literacy and numeracy, which (together with land reform, more advanced education and good economic management) contributed to increased agricultural productivity, to the expansion of labor-intensive manufacturing and exports, and to their remarkable ability to adapt to changes in technology and world demand. At the other end of the spectrum, the poor economic performance of the countries of Sub-Saharan Africa is at least partly attributable to extremely low literacy and the scarcity of highly educated and experienced people.

Knowledge, skills and attitudes are not the only aspects of human resources that affect economic performance. A healthy and well-fed labor force is more physically and mentally energetic than one that is sick and hungry, and therefore gets more work done and is more innovative. This is confirmed by a number of experiments and project-level studies—see pages 55 and 60. The aggregate evidence is less clear-cut.

At the same time, however, there are examples that refute any suggestion that education, health and nutrition are in themselves sufficient to induce rapid growth. Burma and Jamaica, for example, with high levels of literacy and life expectancy for their income levels, achieved annual growth rates of only 1.0 and 2.0 percent per person over the period 1960–78. It is also possible (though difficult if economies heavily dependent on petroleum, other minerals or expatriate skilled labor are excluded) to find cases of fairly rapid growth even with low levels of literacy and life expectancy—Pakistan in the 1960s is an example.

The linkage is imperfect partly because literacy and life expectancy are crude indicators of education and health—and are often measured inaccurately as well. But the main reason is that growth also depends on other factors—the availability of natural resources and physical capital and the efficiency with which all resources are used.

Without modern inputs, the right technology and ready access to markets, even educated farmers find it hard to innovate (see page 48); and they can be discouraged from increasing production by low prices. Without rapid accumulation of physical capital, and policies to ensure that this is associated with rapid growth of productive employment opportunities, the earnings of even a healthy and educated labor force will stagnate. Without the right mixture of education and training, shortages of specific skills will hold back growth, while chronic surpluses of other sorts of manpower may emerge.

Population

Another important influence on the growth of income per person is population growth. One way it has an effect is by increasing population density. In some sparsely populated countries, this in itself might (within limits) have a beneficial effect on average incomes—as it has done in Argentina—by permitting and stimulating more efficient exploitation of natural resources. But in many countries high and growing densities are likely to be a continuing source of poverty. In 1975 the agricultural population per hectare of cropland in Egypt, Bangladesh and probably China was already more than five times that in the Netherlands (see Table 4.1). The scope for compensating by higher yields per hectare is limited—in Egypt because yields are already close to those in developed countries, and in Bangladesh (where yields are much lower) by the high cost of improving water management.

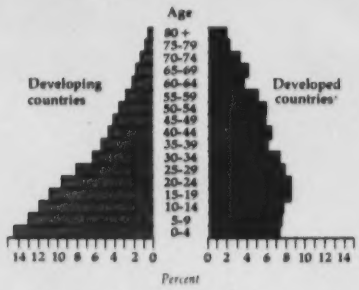
Population growth can affect economic growth in other ways, too. In some circumstances, faster labor force growth can permit faster growth of income per person. That may have happened with the flow of foreign workers into Switzerland and the Federal Republic of Germany in the 1960s and early 1970s. But in the great majority of developing countries, including most of those whose current population density is low, the growth of income per person could be accelerated by slower population growth—for three reasons.

- Lower fertility would reduce the proportion of people who are young and not productive. At present, two-fifths of the people in developing countries are under the age of 15; in developed

Table 4.1 Agricultural population in relation to crop area

Country	Crop area, 1975 (100,000 hectares)	Agricultural population per 100 hectares of crop area, 1975	Projected agricultural population in 1990 per 100 hectares of crop area in 1975
Bangladesh	951	660	980
Burundi	126	256	380
Dominican Republic	100	302	430
Egypt	286	687	890
India	16,720	244	310
Indonesia	1,860	458	540
Pakistan	1,945	204	280
South Korea	242	641	520
Japan	557	289	130
Netherlands	84	107	60

Figure 4.3 Population distribution by age, 1980



a. Include industrialized countries, the USSR and Eastern Europe.

countries the ratio is about a quarter (see Figure 4.3). In the Federal Republic of Germany and the Soviet Union, for example, there are two people of working age for every one who is too young or old to work; in Mexico and Nigeria, there is only one.

- Slower growth of the labor force would mean that less investment, hence a smaller sacrifice of consumption, would be needed to maintain or increase the amount of capital per worker. In most developing countries the working-age population has roughly doubled in the past 25 years. At its current growth rate it will double again in the next 25 years. In Japan and France, by contrast, the working-age population would at its present growth rate take about 90 years to double.

- Human resources could be developed more effectively. About 25 percent of the population of a typical developing country is of primary-school age, compared with 15 percent in developed countries. As a result, for any given amount of spending on education, a developing country has to have either a lower enrollment rate or lower spending per child enrolled. One of the earliest economic effects of declining fertility is a (relatively) smaller school-age group. The number in this group in Colombia, for example, doubled between 1950 and 1970; but because of a fertility decline that began in the mid-1960s, it then increased only slightly in the 1970s—and fell as a proportion of the total population. In South Korea, where fertility has fallen steadily, the number of school-age children has stopped growing.

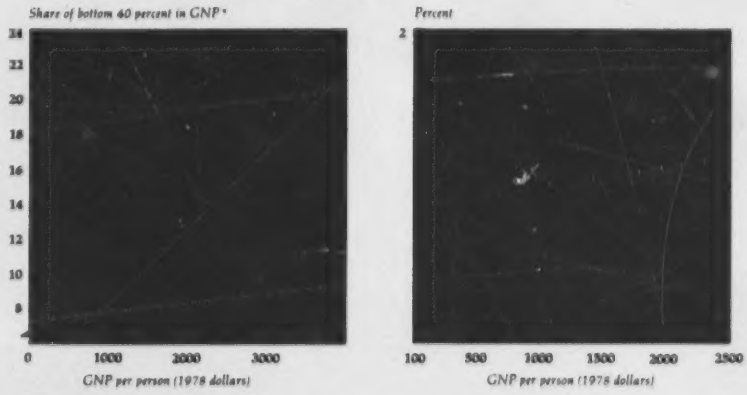
There are other effects apart from reducing pressure on the formal education system. Studies in developed countries (even those controlling for socioeconomic class) have shown that children in smaller families tend to be larger, more intelligent, and to have a longer life expectancy. When high fertility is associated with repeated and closely spaced pregnancies, the mother's health can suffer; the results—low birth weight and early weaning—then damage the child's health. In the Colombian town of Candelaria, for example, the likelihood of malnutrition among preschool children in low-income families was directly related to how many brothers and sisters they had. Furthermore, a child's capacity to learn is affected by the amount and quality of attention received from parents and other adults in the first few years—and that is generally less in large families.

Raising the incomes of the poor

Faster growth of average incomes is essential to reducing absolute poverty, especially in low-income countries, where half or more of the people may be poor. But growth alone is not enough. This is partly because rising population is tending to swell the numbers in absolute poverty even where they are a diminishing share of the population, and partly because in many developing countries there is a large gap between average incomes and the incomes of poorer groups. It is also because (except at fairly high average incomes) growth tends to widen this gap.

This pattern is described by the Kuznets curve, which shows that the incomes of the poorest 40 percent of the population normally grow more slowly than the average until income per person reaches a range of $700 to $900 (see Figure 4.4). Beyond this range, the incomes of poorer groups tend to grow faster than the average. Thus the distri-

Figure 4.4 Income of poorest groups



a. Dates as in Table 24, World Development Indicators.

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bution of income typically is less unequal in developed countries than in developing countries.

The initial rise in inequality occurs chiefly because the impulses and opportunities for harnessing modern technology in a backward economy are unevenly spread. Those who perceive (and can take advantage of) these opportunities forge ahead of those who stay in traditional lines of activity—who in some cases may be undercut and impoverished. As development proceeds, though, the modern sectors in industry, commerce and agriculture become increasingly dominant, drawing most of the labor out of the traditional sectors and pulling up the earnings of those who remain in them.

The Kuznets curve is not an iron law. As Figure 4.4 shows, some countries lie well above it, others below. (Information on changes in income inequality in particular developing countries confirms that they do not all follow a path of the same shape.) Much depends on government policy, which can reduce the unevenness of the modernization process—and accelerate growth—by promoting productivity gains in traditional small-scale agriculture, increasing the rate at which labor is absorbed into the modern industrial sector, and not concentrating public investment and services on a few places and social groups.

In addition, governments can take measures to reduce the inequality of incomes by improving the distribution of productive assets (land, capital, labor skills); avoiding price and wage policies that benefit the urban middle classes at the expense of small farmers; discouraging the exploitation of public position for private gain; and making taxes more progressive. They can also take measures to improve the lot of the dependent poor—children, the aged and many women.

The rest of this section looks more closely at the range of things that can be done—in the context of strategies aimed at increasing average incomes—to raise the incomes of those in absolute poverty.

Land and land tenure

Land reform—the redistribution of land ownership in favor of the poor—has been tried in many countries, with mixed results. In some (South Korea, for example) it has raised the incomes of the rural poor considerably—though better access to credit and extension services for small farmers has proved an essential adjunct. In most developing countries there is scope for further land reform.

Because small farms tend to apply more labor per hectare and to use land and capital at least as productively as large farms, land reform will usually increase agricultural output after a period of adjustment (see box overleaf). But it faces social and political opposition—from landlords and from urban groups that benefit from the bigger marketed surpluses of large farms.

As an alternative to distributing individual parcels of land—which is easier where resettlement on uncultivated land is possible, as in Brazil, Indonesia and Upper Volta—some countries (Algeria, China and Peru, for example) have established cooperatives and communes. But these have tended to encounter, in varying degree, serious problems of incentives and management. Other countries have revised land tenure rules: greater security of tenure gives tenant farmers more incentive to invest. Schemes that encourage landlords of sharecroppers to share the cost of seeds and fertilizers have also tended to increase efficiency. But rent control has proved hard to enforce—especially if there have been plenty of landless laborers willing to replace existing tenants, or if landlords (in their alternate roles as moneylenders and employers) have been able to compensate for loss of rent by extracting more favorable terms from their tenants in other transactions.

Despite the difficulties, land and tenure reform (in urban as well as rural areas) remains a vital element of poverty reduction in many countries, and it merits strong support.

Capital and credit

The poor conspicuously lack every kind of physical capital, but their poverty limits their demonstrated ability to respond to good investment opportunities (such as new seed varieties) by saving more. The alternative is to borrow, which can enable the poor not only to buy pumps and fertilizers for their farms, and tools and materials for their workshops, but also to get their children educated, to pay for transport to better jobs in urban areas, and to tide themselves over periods of illness and unemployment.

But government efforts to help the poor by supplementing traditional informal sources of credit have had only limited success. For long-term credit especially, lenders want collateral—so those with few assets, or who want to acquire intangible assets (such as education) are at a substantial disadvantage. In addition, governments and public agencies usually have not charged an interest rate high enough to make credit programs self-supporting. And the limited amounts of subsidized credit available have often been channeled away from the poor toward more influential groups.

For the poor to benefit from physical investment, however, they do not necessarily have to own or control the assets themselves. Public investment (and private investment by people who

Small is productive

Although most farms in developing countries are small, the small minority of large farms account for most of the area. Yet there is wide-ranging evidence that (comparing similar types of agriculture) smaller farms outperform larger farms in value added per acre. For example:

- India. The Farm Management Studies of the 1950s, covering about 3,000 farms in six states, found that the larger the farm, the smaller its output per acre. Nor has the green revolution—high-yielding varieties of seed—changed this conclusion. The National Council of Applied Economic Research surveyed 4,000 households throughout the country in 1968–69, 1969–70 and 1970–71; more than 2,500 of them were farming throughout the period. Although the productivity gap between large and small farms tended to narrow as the green revolution spread, it remained significant—even after controlling for differences in land quality and irrigation. The proportion of land under high-yielding varieties did not vary by farm size. Tests relating capital and labor use to farm size showed that as farms became larger, they used proportionately less capital and labor—and particularly the latter, which costs less on small farms making use of family labor than on large farms relying mainly on hired labor.
- Brazil. The World Bank and SUDENE, the official regional development authority, carried out a detailed study of 8,000 farms in the poor northeastern region in late 1973 and early 1974. It revealed that the intensity with which land and labor were used declined sharply and consistently as farm size increased. Depending on the subregion, small farms applied 5 to 22 times as much labor per hectare as large farms, although the proportion of high- or medium-yielding soils did not vary significantly with the size of the farm. Small farms tended to employ more labor than profit maximization would warrant, probably in part because family members have difficulty in obtaining employment elsewhere, while large farms employed less.

Such studies suggest that redistribution of land in larger farms into smaller ones in many cases would increase output and employment (and of course equity) significantly. But there are important qualifications. For example, where literacy rates are low among small farmers, middle-size farms tend to be quicker to adopt innovations. After a certain point fragmentation inhibits productivity growth, and significant land is lost through field boundaries (for example, in parts of Asia a holding of one hectare may comprise 15 or 20 tiny parcels). For some combinations of crops and soils, mechanization—and thus large fields—may increase output: research in South Asia provides little support for the yield-increasing effect of tractor cultivation, which may simply cause agricultural laborers to get fewer days of work. But where labor is in relatively short supply, and timely cultivation and harvesting are critical to increasing yields, large mechanized farms may be economically rational.

are not poor) can have a powerful effect on their earnings. Irrigation schemes, which can double the amount of labor required per hectare of land, raise the incomes of landless laborers, even though farmers (especially those who own their land) derive even greater benefits—see Table 4.2. Similarly, roads that reach remote villages and provinces where some of the poorest people live have (in Liberia and Thailand, for example) increased their incomes by giving them access to new seeds, insecticides and markets, as well as by enabling them to move more readily to places where they can earn more.

The construction phase of infrastructural investments can also provide employment and higher wages for the poor. The record of employment through public works is a checkered one—there have been too many cases where for one reason or another local labor has not received much benefit or where the road or dam concerned has been of little economic value.

But there are enough examples of successful schemes (as in Morocco and the Indian state of Maharashtra) to suggest that the approach is worth pursuing, albeit with care. Nor, as Chinese experience shows, need schemes of this kind be only temporary. With good organization, investment in rural infrastructure can continue indefinitely. In this as in all areas, governments should not encourage excessive capital intensity and thus discourage employment creation. The policies required, which were discussed at length in Chapter 4 of last year's *Report*, are partly a matter of avoiding subsidies for capital and taxes on labor, but also involve general development strategy (including that for foreign trade).

Education, health, nutrition and fertility

The employment opportunities and earning power of many of the poor are also limited (in ways to be discussed further in Chapter 5) by sickness, insufficient food and lack of education. Their standard of living is also depressed by their high fertility and large family size—each adult's earnings have to support more dependents than in richer families (see Table 4.3).

Better health and nutrition can permit poor people to work more days in each year (which among other things increases their eligibility for employment in modern industry) and can increase their effectiveness at work. Studies of construction projects in India and Indonesia showed that poor health and nutrition were among the factors which tended to make the use of capital-intensive techniques more economical, even where labor was cheap and abundant.

Even a primary education can raise the productivity of small farmers (see page 48) and, though this has been studied much less, make the poor better entrepreneurs in other lines of business. Moreover, basic education is usually a precondition of employment in modern manufacturing and services. In Brazil, for example, the growth of modern industrial

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Table 4.2 Irrigation and income, selected projects

Country and beneficiary	Household income (current dollars)			
	Without irrigation	With irrigation[a]	Absolute increase	Percentage increase
Cameroon (northern: rice) 1978				
Farmers	178	1,013	835	469
South Korea (Pyongtaek-kumgang: rice) 1976[b]				
Farmers	286	500	214	75
Malaysia (Muda: rice) 1974	190	361	171	90
Large-scale farmers	237	448	211	89
Small-scale farmers	131	247	116	89
Landless laborers	73	166	93	127
India (Uttar Pradesh: rice, wheat, sugarcane) 1978	181	359	178	98
Large-scale farmers	384	738	354	92
Medium-scale farmers	218	464	246	113
Small-scale farmers	148	264	116	78

a. All studies control for changes in other influences on incomes.
b. Household income per person.

employment is slowest among uneducated people. Literacy and numeracy are necessary not just in clerical work, but also in the many manual jobs that involve following written instructions or keeping simple records. Schooling has also been shown to increase the capacity to learn from subsequent formal training and practical experience.

It should be emphasized that better education, health and nutrition—while they may be necessary to increase the earning power of the poor—are not sufficient. Complementary measures are also needed to expand the demand for labor and to furnish the incentives and material resources required for innovation.

Nor will all the gains in income that can result from better education, health and nutrition among the poor necessarily accrue to the poor. In some circumstances, the increased productivity of a farmer will partly benefit his landlord—or consumers, for that matter, who may be able to buy food more cheaply. These distributive issues are difficult and poorly understood, but they do not detract from the fundamental point that poor health and lack of education are likely to aggravate the exclusion of the poor from modern development. If the innovations of richer and better educated farmers increase agricultural output and reduce its price, the incomes of the poor farmers who do not innovate will fall.

Table 4.3 Dependency ratios, by income group

Income group[a]	Average household income (percentage of national average)	Dependency ratio[b]
Peninsular Malaysia, 1973		
Richest 10 percent	332	0.4
Poorest 10 percent	18	1.2
Sri Lanka, 1969–70		
Richest 10 percent	240	0.5
Poorest 10 percent	46	1.3
Nepal (seven towns), 1974–75		
Richest 10 percent	167	0.4
Poorest 10 percent	51	1.2

a. Households ranked by income or expenditure per person.
b. Children (0–14) and the aged (over 65 for Peninsular Malaysia; over 60 for the others) as percentage of the rest.

While others may benefit from the poor being educated, the converse is also true. More and better extension workers are needed to reach poor farmers. Technicians and accountants are needed to run factories. More managerial and administrative training and experience could increase the rate of industrial and agricultural expansion, create more jobs and raise the incomes of everyone.

Research and technology

Nor should specialized scientific and technological education be overlooked. Their role in reducing poverty is particularly apparent in agriculture. The introduction of high-yielding rice and wheat varieties—the green revolution—has substantially improved the lives of poor consumers and (on balance, with many exceptions) small farmers in the wetter parts of Asia. But more research is urgently needed on dry farming (the economic rate of return to this sort of research has typically been as high as 20–30 percent) and on the cultivation of poor soils and subsistence crops on which many low-income farmers depend. And in countries where climate and soil conditions vary widely from place to place, much more research is needed to determine the best farming methods for each place—in Tanzania this is being held back by a shortage of scientists at local research stations.

Industrial research also has a part to play in reducing poverty (as does research in such fields as education and health). Many technical advances stem from work done by large firms in industrialized countries. The resulting innovations, which tend to be concentrated on capital-intensive methods of large-scale production, often benefit the poor—as in the case of fertilizer. But small enterprises are

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disadvantaged, job creation is limited, and some of the goods bought by the poor are not improved or made cheaper as rapidly as those bought by the rich. More research, especially if undertaken in developing countries, could reduce these biases. Progress has already been made, for example, in small-scale food processing and labor-intensive construction.

Migration

Technology is one way of making progress in places where poverty stems from poor land or poor climate. Another is for people to move to places where opportunities are better. Expansion of rural employment, both on and off farms, will reduce the need for migration; but it is clear that the industrialization of poor countries (like that of the now-developed countries) will in the long term require large-scale migration from rural to urban areas. International migration has also been important in reducing poverty—particularly in Northern Europe in the 19th century, but also more recently in Mediterranean and other developing countries where a significant proportion of the relatively unskilled labor force has migrated to the Middle East or elsewhere (see box on page 22).

The relation between rural-urban migration and poverty remains somewhat controversial; but views on this subject have evolved over the past decade (see Chapter 6 of the *World Development Report, 1979*). It now is increasingly recognized that those who move generally make themselves better off. Their incomes go up, and they and their dependents have better access to health and education services. Studies in India show that the chances of girls from poor families going to school are more than twice as high in large cities as in rural areas.

On the other hand, there is still widespread concern about the fiscal, social and political costs of rapid rural-urban migration, which, by holding down urban wages and adding to pressure on government services, retards the rate of improvement in the living standards of the urban poor. But these living standards, low as they often are, tend to be above those of the rural poor. Where they are not, as in Calcutta, migration usually ceases or goes into reverse. Indeed, reverse and repeated migration in response to changing job opportunities has been found to be common.

The effects on those who remain in the countryside—other than the families of migrants that benefit from remittances—appear to vary from case to case. In some, non-migrants gain because the labor market tightens when people leave, and because there is less pressure on agricultural land. In others, remittances have been spent on concentrating land ownership—to the detriment of the poor. And in a few cases the exodus of bright young people may have held back agricultural progress. The impact of rural development programs on migration is not clear-cut, either; land redistribution, expansion of the cultivated area, and lower fertility reduce emigration; but improved communications and the commercialization of agriculture appear to increase it.

The extent to which the poor benefit from migration depends partly on the extent to which they have had access to at least a primary education (see box). Illiterate people do migrate, and often gain substantially by it (though sometimes they become destitute wanderers). But Indian evidence suggests that they move mainly to other rural areas. If they try to move to urban areas, where earnings prospects are generally better, the uneducated are much more likely (as a study of Bombay showed) to fail to get jobs and to be forced to leave.

The same is true of international migration. The poor and uneducated are less likely to find out about opportunities for working abroad. More important, they have less chance of being accepted by prospective employers. It has been estimated that more than three-quarters of the foreigners now working in the Middle East are literate, and almost all of them have some skills. Even if no formal training is needed, good health is invariably a prerequisite of foreign employment, and one which many poor people are unable to fulfill.

Migration of all kinds can have harmful social and economic effects. But on balance the evidence suggests that, by enabling labor to be used where it is most productive, migration aids both growth and poverty reduction—and would do so even more if the poor were better equipped to migrate. Develop-

A strategy that backfired

The experience of two subclans in western Kenya illustrates some of the interactions between education, migration and agricultural development.

In the 1930s the head of the more powerful subclan, anxious to conserve his people's land, caused the colonial administration's schools to be built on the land of the other subclan. This had unexpected consequences.

The education received by members of the less powerful subclan enabled some of them to get jobs in the local town. The money they remitted was used to purchase improved livestock, to switch into cash crops (especially coffee) and to establish more schools. In addition, the movement of people to the town slowed the rate at which land was subdivided, making the introduction of improved livestock (which required a minimum grazing area) more profitable.

By 1974, although the division of political power was still the same, the less powerful subclan had become the richer of the two.

ment strategies that assume that the productivity of the poor must necessarily be raised in the places where they now live may be both inefficient and inequitable. Not least, the children of the landless in stagnant rural areas may be best served by a primary education that will increase their geographic, as well as economic, mobility.

Transfers and subsidies

In industrialized countries the mainstay of antipoverty policy is income transfers aimed at offsetting life-cycle poverty among the old and the very young, and at compensating for loss of earnings through sickness, unemployment and so on. In developing countries, too, these are important causes of extreme poverty (though they tend to be mitigated more through the extended family); and they are not touched directly by measures to raise earning power. Brazil, Turkey and a number of other middle-income countries have fairly extensive social security programs. But the scope for such programs in low-income countries is necessarily limited.

An alternative approach, used in both industrialized and developing countries, is to subsidize (and sometimes also ration) items that are particularly important for poor people. Such subsidies can raise the real incomes of the poor considerably—witness the increase in Peru's infant mortality when subsidies were reduced and unemployment rose in 1976. Indeed, the three low-income countries with life expectancy above 60 years all provide guaranteed or subsidized food. But programs of this sort (discussed further on page 62) have to steer a tricky course between the financial rocks of general subsidization and the administrative and political rocks of effectively reaching the poor.

□ □ □

The next three chapters examine in more detail one aspect of antipoverty policy—human development. Chapter 5 looks at the consequences and determinants of education, health, nutrition and fertility; at policies that affect them; and at the way in which they (and incomes) interact. Chapter 6 considers some of the common practical problems —political, financial, administrative— of human development programs. Chapter 7, in the context of a discussion of the several regions of the developing world, addresses some practical questions of priorities and tradeoffs: How do the benefits and costs of human development programs compare with those of the other approaches to poverty reduction discussed in the present chapter? How does the best allocation of resources vary according to the circumstances of particular countries and the specific objectives being pursued?

5 Human development issues and policies

This chapter looks at the four main areas of human development—education, health, nutrition and fertility—and at the links between them. In each, it considers the causes and effects of poverty and various ways of breaking its grip on the poor and their children.

Ten years ago this chapter would have been written very differently. In certain areas thinking has changed substantially—for instance, about the nature of malnutrition and its causes. Good progress has been made in unraveling some complex and highly controversial issues—for example, the respective roles of family planning and social development in reducing fertility. And in all areas, research and practical experience have improved understanding of the nature of poverty and what can be done about it.

Education

Every individual is born with a collection of abilities and talents. Education, in its many forms, has the potential to help fulfill and apply them.

In some societies the economic function of schooling is regarded as minor—since the cultivation of the mind and the spirit, curiosity, contemplation and reasoning have more than economic purposes and justifications. But in the context of this *Report*, it is the role of education in overcoming poverty—increasing incomes, improving health and nutrition, reducing family size—that receives most attention.

A decade or two ago, there was a widespread view that trained people were the key to development. Universal literacy was a political objective in many countries, but money spent on primary schooling was often regarded as diverted from activities that would have contributed more to economic growth. Planners favored the kinds of secondary and higher education that directly met the "manpower requirements" of the modern sector. People who worked with their hands were thought not to have much need of formal education.

Over the past decade, views have changed substantially. Adequate provision of secondary and higher education and training remains an important priority. But the value of general education at the primary level is now more widely recognized. This section discusses more of the evidence that lies behind this change in views, and its implications for development strategy.

Recent progress

The major educational progress of the past two decades reflects heavy investment by developing countries. Their total public expenditure on education rose in real terms (in 1976 dollars) from about $9 billion in 1960 (2.4 percent of their collective GNP) to $38 billion in 1976 (4.0 percent of GNP). Costs vary widely by region—and by type of education (see Table 5.1). The potential for continued enrollment growth at different levels will, of course, be strongly affected by these costs.

But school attendance in some parts of the world remains low, especially among the poor, in rural areas and by girls (see Figure 5.1 and Table 5.2). This is not simply because schools are unavailable—not everyone who has an opportunity for education accepts it. Among those who do enroll, moreover, in developing countries on

Table 5.1 Public expenditures on elementary and higher education per student, 1976

Region	*Higher (post-secondary) education*	*Elementary education*	*Ratio of higher to elementary education*
Sub-Saharan Africa	3,819	38	100.5
South Asia	117	13	9.0
East Asia	471	54	8.7
Middle East and North Africa	3,106	181	17.2
Latin America and Caribbean	733	91	8.1
Industrialized	2,278	1,157	2.0
USSR and Eastern Europe	957	539	1.8

Note: Figures shown are averages (weighted by enrollment) of costs (in 1976 dollars) in the countries in each region for which data were available.

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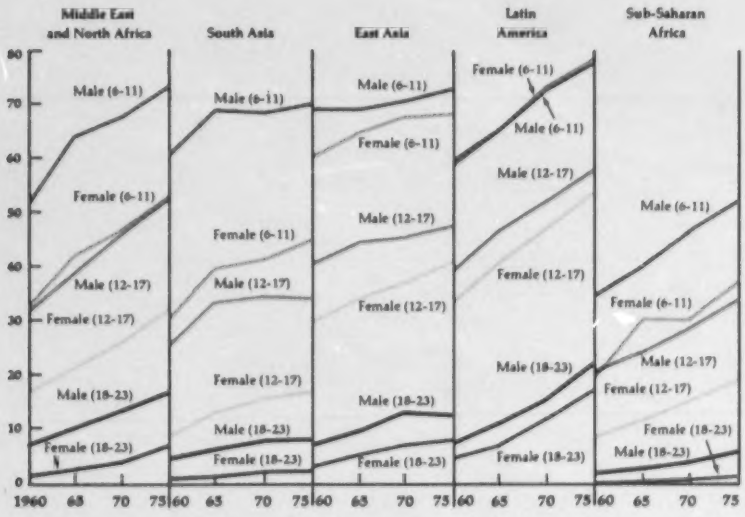
average 40 percent drop out before the fourth year. In Brazil's poor rural Northeast region in 1974, despite an enrollment rate of 46 percent (less than half the national urban average), nearly two-thirds of the students dropped out before the second year—and it is estimated that at most 4 percent completed four years. Even the completion statistics conceal the very low quality of some of the schooling provided (see pages 52–53).

Nonetheless, the very substantial growth in enrollment (Figure 5.1) is a sign of great educational advance. There are several mechanisms through which this has contributed to growth in incomes.

Figure 5.1 Enrollment ratios, by region, 1960–75

(percent)



Source: UNESCO.

Table 5.2 Primary school enrollment, by income group

(percent)

Country	Boys (aged 5–9)		Girls (aged 5–9)	
	Poorest households	*Richest households*	*Poorest households*	*Richest households*
Sri Lanka, 1969–70	70.3	89.8	65.8	81.9
Nepal, 1973–74				
11 towns	29.5	77.8	15.3	71.2
India: Gujarat state, 1972–73				
Rural	22.7	53.9	8.6	50.9
Urban	42.1	77.7	30.8	69.5
India: Maharashtra state, 1972–73				
Rural	24.6	54.6	16.6	52.9
Urban	40.4	86.3	42.1	87.0

	Both sexes (aged 6–11)	
	Poorest households	*Richest households*
Colombia, 1974		
Large cities	69.6	94.6
All urban	62.0	89.5
Rural	51.2	60.0

Note: Enrollments are expressed as a percentage of the number in the age group. Poorest and richest refer (in the case of India, Nepal and Sri Lanka) to the bottom and top 10 percent of households ranked by expenditure per person, and (in the case of Colombia) to the top and bottom 20 percent of households ranked by income per person.

Effects of education on earning power

Schooling imparts specific knowledge and develops general reasoning skills (its "cognitive" effects); it also induces changes in beliefs and values, and in attitudes toward work and society ("noncognitive" effects). The relative importance of these effects is much debated, but poorly understood; both are extremely important.

In the cognitive area, developing a generalized capacity for thinking and learning has to be found to be more important than the specific subjects learned. On-the-job training, informal education and vocational training all build on learning abilities acquired earlier. And although literacy and numeracy deteriorate if left unused, the educational experience still generally provides an improved foundation for subsequent learning.

Many of the noncognitive effects of schooling—receptivity to new ideas, competitiveness, and willingness to accept discipline—are directly relevant to productive economic activity. Others—tolerance, self-confidence, social and civic responsibility—are more personal or political in nature, but may also affect economic performance.

Some of the evidence on the effects of education rests on attempts to measure attitudes directly. Studies in several countries have shown that "modernity" of outlook toward activities ranging from voting to family planning, saving and

working, is more influenced by the level of the individual's schooling than by any other factor. But there are also many studies of the direct effect of schooling on individual productivity and earnings, which are examined here under two heads —those relating to the self-employed and those relating to employees.

THE SELF-EMPLOYED. The hypotheses are straightforward: that primary education helps people to obtain and evaluate information about improved techniques and new opportunities, to keep records and estimate the returns of past activities and the risks of future ones. More generally, primary schooling is a training in how to learn, an experience in self-discipline and in working for longer-term goals.

Most of the empirical evidence comes from agriculture—studies comparing the productivity, yields and innovative activity of schooled and unschooled farmers. Not all these studies controlled adequately for other influences, particularly wealth; but many did (for example, by including farm size as a proxy for wealth).

The general weight of the evidence (see Table 5.3) lends strong and consistent support to the hypotheses—and is particularly compelling because the studies measure productivity directly, not through wages. Where the complementary inputs required for improved farming techniques were available, the annual output of a farmer who had completed four years of primary schooling was on average 13.2 percent more than one who had not been to school. As expected, where complementary inputs were not available, the increase in output resulting from additional schooling was on average smaller—but still substantial.

Whether these increases should be regarded as large or small depends on the cost of achieving them. It is thus significant that studies that went on to compare the increase in production resulting from education with the costs of that education (for example, in Korea, Malaysia and Thailand) found rates of return comparing very favorably with investment in other sectors. It is, of course, impossible to predict which places will offer scope for improved farming techniques in 10 years' time, when children leave school. In some, effects on farm productivity may be low. But given past progress in agricultural research, it is probable that some places with stagnant technology now will offer greatly improved possibilities. Thus, on growth as well as equity grounds, it would be short-sighted to leave a large part of the next generation of farmers illiterate.

Table 5.3 Farmer education and farmer productivity

Study	*Estimated percentage increase in annual farm output due to four years of primary education rather than none*
With complementary inputs[a]	
Brazil (Garibaldi), 1970	18.4
Brazil (Resende), 1969	4.0
Brazil (Taquari), 1970	22.1
Brazil (Vicosa), 1969	9.3
Colombia (Chinchina), 1969	−0.8
Colombia (Espinal), 1969	24.4
Kenya, 1971–72	6.9
Malaysia, 1973	20.4
Nepal (wheat), 1968–69	20.4
South Korea, 1973	9.1
Average (unweighted)	13.2
Without complementary inputs	
Brazil (Candelaria), 1970	10.8
Brazil (Conceicao de Castelo), 1969	−3.6
Brazil (Guarani), 1970	6.0
Brazil (Paracatu), 1969	−7.2
Colombia (Malaga), 1969	12.4
Colombia (Moniquira), 1969	12.5
Greece, 1963	25.9
Average (unweighted)	8.1
No information on availability of complementary inputs	
Average of eight studies (unweighted)	6.3

a. Improved seeds, irrigation, transport to markets and so on.

EMPLOYEES. The second type of study relates the educational levels of individuals to their wages and salaries. If education affects the capacity to learn, innovate and adapt, its effects should be particularly important for employees doing nonroutine or changing tasks. For employees in modern enterprises, primary education also promotes disciplined work habits and responsiveness to further training, as well as offering the advantages of literacy and numeracy.

Studies of the rate of return to education for wage earners deal mainly with relatively large urban enterprises; but a few have included small businesses and agricultural workers. All find that more schooling leads to higher earnings. And when the extra earnings resulting from primary education are weighed against its costs, high rates of return are consistently found. Similar studies for secondary and higher education find lower, though nonetheless substantial, returns (see Table 5.4 and box).

Investment priorities in education

Primary education is of particular importance in overcoming absolute poverty. But secondary, higher, vocational and adult education and training also have major roles to play.

PRIMARY EDUCATION. In countries where it is far from universal, the case for increasing the proportion of children who complete primary education is strong. While there have been high economic returns in the past, it has been suggested that the rate of return to primary schooling (especially in certain jobs) may decline as the proportion of the labor force with primary education increases. But

this may be offset by shifts in the pattern of production toward more skill-intensive goods. In Table 5.4 the rates of return to primary education in countries with adult literacy rates above 50 percent, while somewhat below those in countries with adult literacy below 50 percent, are still strikingly high. And in the few countries where studies have been done at different periods, rates of return have usually declined, but only mildly.

There are also favorable effects on equity. As primary education becomes more widespread, additional spending will be increasingly concentrated on backward rural areas, girls, and the poorest urban boys. In general, primary education tends to be redistributive toward the poor (see Table 5.5). In contrast, public expenditure on secondary and higher education tends to redistribute income from poor to rich, since children of poor parents have comparatively little opportunity to benefit from it.

Primary education, especially of girls, has favorable effects on the next generation's health, fertility and education (see box overleaf). Finally, it enriches peoples' lives. Many would regard this as sufficient justification for universal primary education, independent of its other benefits.

Table 5.4 Rates of return to education
(percent)

Country group	*Primary*	*Secondary*	*Higher*	*Number of countries*
All developing countries	24.2	15.4	12.3	30
Low income/adult literacy rate under 50 percent[a]	27.3	17.2	12.1	11
Middle income/adult literacy rate over 50 percent	22.2	14.3	12.4	19
Industrialized countries	..	10.0	9.1	14

Note: In all cases, the figures are "social" rates of return: the costs include forgone earnings (what the students could have earned had they not been in school) as well as both public and private outlays; the benefits are measured by income before tax. (The "private" returns to individuals exclude public costs and taxes, and are usually larger.) The studies refer to various years between 1957 and 1978, mainly in the latter half of the period.

a. In this sample of 30 developing countries, those countries with low incomes also had literacy rates below 50 percent (at the time the studies were done). All the middle-income countries had literacy rates above 50 percent.

Schooling, screening and productivity

The interpretation of rates of return to education—especially secondary and higher education—is still controversial. It has often been argued that educational qualifications are simply a "screening" device, signaling an individual's productive qualities to an employer without actually enhancing them. In some developing countries, moreover, the public sector—and some heavily protected parts of the private sector—are the main employers of university and even secondary-school graduates: it has been suggested that the salaries they pay are often artificially inflated and bear little relation to relative productivity; and that educational requirements serve merely to ration access to these inflated salaries. In both cases, earnings differences associated with different levels of education would overstate the effect of education on productivity.

On the other side it is argued that school "screening" is by no means all wasteful and is preferable to such other screening methods as caste or family connections. It is also argued that labor markets are not so monopolistic, and thus that relative wages are not such imperfect indicators of productivity, as those who have concentrated on their institutional characteristics and determinants have supposed. In developed countries the relative wages of different occupations have gradually but steadily changed in response to increases in the supply of educated labor. That the same process operates even in the public sector in developing countries is suggested, for example, by the fact that the relative salaries of teachers and civil servants are much higher in Africa, where educated manpower is much scarcer, than in Asia, where it is more abundant.

The conventional economic interpretation of the association between schooling and wages is further strengthened by a few studies showing that more educated workers have increased output in specific manufacturing industries, by evidence of substantial returns to education even in agriculture and other traditional small-scale activities, where one would expect educational credentials to be much less important, and by the macroeconomic evidence discussed in the box on page 38.

SECONDARY AND HIGHER EDUCATION. Renewed emphasis on the importance of primary education, and its high returns relative to secondary and higher education, should not start the pendulum swinging too far in the other direction. High levels of knowledge are necessary for many people who serve the poor, both directly as teachers, health workers and agricultural extension workers, and indirectly as researchers, technicians, managers and administrators. While their skills must be developed to a considerable extent through practical experience and in other ways, there is for some purposes no better or cheaper substitute for the formal disciplines of conventional schooling. Even allowing for doubts about the estimated rates of return to secondary and higher education, and for the existence of some educated unemployment (see box on next page), there are unquestionably severe shortages of skilled people in many developing countries.

More economical ways of producing skilled people need to be found. First, greater use of in-career and on-the-job training should be

Table 5.5 Public education spending per household, by income group
(dollars)

	Malaysia, 1974[b]		Colombia, 1974[c]	
Income group[a]	*Primary*	*Postsecondary*	*Primary*	*University*
Poorest 20 percent	135	4	48	1
Richest 20 percent	45	63	9	46

a. Households ranked by income per person.
b. Federal costs per household.
c. Subsidies per household.

The benefits of women's education

Educating girls may be one of the best investments a country can make in future economic growth and welfare—even if girls never enter the labor force. Most girls become mothers, and their influence —much more than the father's—on their children is crucial:

- In health. Studies in Bangladesh, Kenya and Colombia show that children are less likely to die, the more educated their mothers, even allowing for differences in family income.
- In nutrition. Among households surveyed in Sao Paulo, Brazil, for any given income level, families were better fed the higher the mother's education.
- In fertility. Education delays marriage for women, partly by increasing their chances of employment; and educated women are more likely to know about, and use, contraceptives.

Yet in most parts of the developing world, there are many more boys than girls enrolled at school (see Figure 5.1). True, female enrollment grew faster than male between 1960 and 1977; but when boys' enrollments were where female enrollments are today, they were growing even faster. The educational bias is most pronounced in South Asia, the Middle East and North Africa, and parts of Sub-Saharan Africa; but it exists to some extent in every region.

Why? From the parents' point of view, education for their daughters may seem less attractive than for their sons. They may fear that education will harm their daughters' marriage prospects, subsequent domestic life and even spiritual qualities. A girl's education brings fewer economic benefits if there is discrimination against her in the labor market, if she marries early and stops working or if she ceases after marriage to have any economic obligations toward her parents.

But parents and their daughters do respond rapidly to changing opportunities. When women took on key roles in the Anand Dairy Cooperative in Gujarat, India, education for girls became more valued. When a nutrition project in Guatemala offered employment to educated girls, the test scores of younger girls improved.

More generally, education does increase the chance of paid employment for girls. In Brazil married women with secondary education are three to four times more likely to be employed than those with primary education only—who in turn are twice as likely to work as women with no education at all.

explored. Second, steps should be taken to reduce the high unit costs of secondary and higher education (shown in Table 5.1).

- For example, the number of university specializations can be reduced, relying on foreign universities (not necessarily in developed countries) for specialized training in areas in which small numbers of students lead to excessive teaching and equipment costs per student. Care must be taken to encourage repatriation and to prevent foreign training from becoming exclusively the privilege of the children of the rich and influential.
- Correspondence courses can dramatically reduce the cost of secondary and higher education and teacher training. The Korean Air-Correspondence High School, for example, provides secondary education at about a fifth the cost of traditional schools, and allows would-be students who have to earn a living to continue their education at the same time. Recent studies (in Brazil, Kenya and the Dominican Republic) have also concluded that correspondence courses have effectively taught people in remote areas.
- In most countries the families of postprimary students pay too little for education. They are generally much better off than the national average: in Tunisia, for example, the proportion of children from higher income groups is nine times larger in universities than in elementary school. Since the rewards from higher education are large, it is highly desirable (though often politically difficult) to charge tuition and other fees to cover costs. Scholarships can be given to students whose families cannot afford to pay.

The cost of secondary and higher education makes it inevitable that in most countries demand for places will exceed supply for the foreseeable future, although some countries, such as South Korea, already have very high enrollment rates. But economic considerations are not the only relevant ones: secondary education often helps in lowering fertility and reducing child mortality (over and above the effects of primary education). All developed countries have found universal free secondary education to be desirable in its own right. The question for developing countries is less "whether" than "when." Higher education clearly also has scientific, cultural and intellectual objectives, as well as economic ones.

VOCATIONAL EDUCATION AND TRAINING. Experience shows that it is often inefficient to rely heavily on schools (as opposed to the workplace and short-term training

Unemployment among the educated

Unemployment statistics in developing countries are sparse and often hard to interpret. Evidence on open unemployment (persons without a job and actively seeking employment) indicates that it is primarily an urban phenomenon heavily concentrated among workers in their teens and early twenties. Since these are the ages at which individuals typically leave school or university, there has been concern that educational expansion in developing countries will produce a growing problem of "educated unemployment." But despite the increased outflow of students over the past decade, particularly secondary-school graduates, there is no evidence of rising trends in open unemployment rates. Unemployment statistics from a number of countries do, however, suggest that secondary-school leavers experience higher rates of unemployment than the uneducated or those with postsecondary education.

By and large, educated unemployment appears to be associated with the processes through which the labor market adjusts to an increased supply of school leavers. First, the earnings expectations or job preferences of school leavers may not keep pace with changes in labor market conditions brought about by increased numbers of workers with educational credentials. Second, the structure of wages may be slow to adjust—especially if the public sector is a major employer of educated workers. School leavers may then be encouraged to wait for jobs in well-paid occupations rather than immediately accept a job that pays significantly less; if the wage difference is high enough and the probability of obtaining a higher-paid job is sufficiently large, a period of job-seeking or unemployment will yield a higher expected "lifetime" income.

The educational pattern of unemployment is consistent with this explanation. It is not worthwhile for uneducated workers to remain unemployed as they search for a well-paid job. At the other extreme, highly trained people are scarce in many countries—so college graduates can get well-paid jobs immediately. But those in between—the secondary-school leavers—are neither assured of high-wage jobs nor completely out of the running; for them, there may be high returns to a full-time search for a job. Since the unemployed are young, with few dependents and often supported by their families, and since most of them eventually find jobs, neither the social nor the private costs associated with this unemployment are as serious as might appear.

Moreover, the fact that some primary- and secondary-school leavers are unemployed does not imply that the economy is unable to make productive use of more of them. Various studies have shown that the social rate of return to investment in education may be high despite the number of educated unemployed. But in the eyes of governments, frustrated school leavers or college graduates can form a politically volatile group. Some governments have therefore virtually guaranteed public-sector jobs for post-secondary leavers whether or not there has been socially productive work for them to do. This can result in a major drain on government revenues and impede the diffusion of educated manpower into more productive uses as well.

institutions) to develop vocational skills. Vocational and technical schools often find it difficult to strike the right balance between general preemployment training and the provision of specialized skills, and are often slow to adjust to the economy's changing needs. In many school systems where competition for higher education is strong, they also suffer from low prestige.

By contrast, institutions that provide training in skills with wide applicability as a foundation for later on-the-job training or short-term courses (which may be needed more than once in a lifetime) are more likely to be successful, especially if, as in Brazil, Chile and Singapore, there is coordination with potential employers.

ADULT EDUCATION. Certain types of adult education play a useful role. To be effective, adult education must be conducted by dedicated and responsible teachers, and must address specific, felt needs; after a major review, UNESCO concluded that the poor results of most adult literacy programs were due to lack of demand. Where there is an explicit need, results have been better. For example, a recent review found that agricultural extension—which is essentially an applied form of adult education—generally helped to raise productivity; and the World Bank's experience with the "training and visit" (T & V) approach to agricultural extension, which puts great weight on careful training and supervision of field workers, is consistent with this. In West Bengal, for example, T & V was introduced in 1975 and helped to raise the proportion of land area planted with high-yielding wheat and paddy varieties from less than 2 percent to 40 percent, in a single year. While T & V is effective even with illiterates, literate farmers tend to be more responsive to suggested changes.

Implementing investment priorities

The education received by poor children depends on three things. The first is accessibility—are there school places for them within a reasonable distance from home? The second is use—do their parents send them to school, and are they allowed or encouraged to drop out? The third concerns the quality of the education that schools provide.

ACCESSIBILITY. Financing constraints will often be compounded by difficulties in reaching the poor—distance, low-density populations and poor communications—so that building schools and supplying books, equipment and qualified teachers is a difficult and expensive task. For example, the Nepalese government estimates that it costs more than twice as much to build and equip a school in mountainous regions as it does

in the plains; and attracting qualified teachers to remote areas has proved to be extremely difficult.

There is often much that can be accomplished by administrative action with relatively little capital investment. Repetition of classes and early dropout may be the result of excessively high promotion standards. In these circumstances, the flow of students can be accelerated by more automatic promotion—while maintaining quality by correcting some of the causes of repetition or dropout. In many situations, resources can be freed for extending education by raising student-teacher ratios, which are the main determinant of unit costs (given teacher salaries) and are largely determined by class size. Extensive research shows that class size has surprisingly little effect on learning (see box). It is important to maximize the use of available facilities—by rotating classes, with staggered scheduling and double shifts in areas of high population density. If there are not enough pupils within an acceptable distance from school to fill individual classes, student-teacher ratios and the use of space can be significantly improved by taking new students only in alternate years (as has been done successfully in a project financed by the World Bank in Malaysia) and by teaching more than one grade in a class, as in another World Bank-financed project in El Salvador.

USE. Since most poor parents believe that education would benefit their children—in terms of status and the ability to stand up to officials and merchants, as well as in a more narrowly economic sense—they must have strong reasons for not sending their children to school if they have the chance. They may question whether they will benefit themselves; they may even regard the school as a threat to their traditional way of life; or they may simply believe that social or ethnic barriers are too great, or the quality of the available schooling too low, to make education worth its costs. For poor families, the help of children at home—in animal care, fetching fuel and water, taking care of young children while adults work, and in agricultural work during busy seasons—may conflict with a fixed school schedule. For some families, malnutrition and poor health of children may lead to poor attendance, inattention while in school, repetition of grades and, eventually, dropping out. And there are particular reasons that girls receive less education than boys (see box on page 50). Since the mere existence of a school does not automatically mean it is used by all those eligible to attend, special measures may be needed to ensure that the education offered is attractive to the families for whom it is intended (see pages 78–79).

Big is not necessarily bad

Class sizes vary widely in the developing world—at elementary schools, from more than 60 in four countries (Chad, Malawi, Congo-Brazzaville and Central African Republic) to less than 25 in seven (Iraq, Barbados, Bolivia, Uruguay, Romania, Mauritania and Mauritius). Yet once classes have more than 40 students, varying their size has almost no effect on student learning (though larger classes may weaken discipline and teacher morale). Between 15 and 40, students learn more in smaller classes (and still more in even smaller classes), but the benefits are slight. For example, reducing an elementary-school class from 40 pupils to 15 can be expected to improve average achievement (in a standard test) by only about 5 percentage points. By the same token, a modest increase—from 35 to 40 pupils, say—might reduce achievement by only a single percentage point. While there are obvious practical limits to increasing classes much above 50, the research does suggest that, for classes initially below 50, little will be lost if they are increased.

In sparsely populated areas, larger classes—if that means fewer schools—may increase the time it takes children to get to school. That could be a genuine discouragement, though in most places population density is high enough not to make it so.

QUALITY OF EDUCATION. This is generally low in developing countries, and has been found (for example, in studies undertaken in Thailand, Malaysia and the Philippines) to be lower still for poor and rural pupils. Poor quality public schools may lead the well-to-do to choose private schools for their children, reinforcing social and economic inequality.

Casual observation and small-scale studies have long suggested that poor training of teachers, lack of textbooks, and inadequate school facilities lead to poor educational results and provide a weak basis for subsequent training. But broad-based evidence to demonstrate the extent of the resulting learning losses has only recently become available—from a large research project, the International Evaluation of Educational Achievement. But only four developing countries (Chile, India, Iran and Thailand) were among the 19 countries covered.

While international comparisons of student achievement must be approached gingerly, particularly when different languages or testing styles can affect the results, a clear pattern nonetheless emerges from the study. Differences in average performance of students from the 15 developed countries varied somewhat from subject to subject and country to country; but the differences by and large were small. The developing countries, however, did far less well—in all subjects tested, and at each of the three age levels examined.

A typical finding showed the mean score for students in a developing country to be in the bottom 5 to 10 percent of students from a developed country. Some of the handicaps of children in developing countries may be due to lower levels of parental education (which has a substantial impact, particularly in the preschool years) or in some cases to prolonged malnutrition. But the evidence suggests that they are mainly a reflection of low-quality schooling.

There are a number of promising approaches to improving educational quality in developing countries.

- The curriculum should take into account the linguistic and home backgrounds of students. Frequently curricula are too demanding, which only exacerbates tendencies to repeat classes or drop out, particularly for those from poor homes. Whenever possible, subjects should be illustrated with examples that draw on the child's experience.
- The selection and training of teachers should be improved through more training facilities, greater use of in-service training, and more resources—teachers' guides, advisory services, mass-media programs and bulletins. This takes time, however; for many countries, better teaching will be as much a consequence as a source of improved quality in schools.
- The design, production and distribution of learning materials should be upgraded. This applies particularly to textbooks, because research indicates that increasing their availability is the most consistently effective way of raising educational standards. A nationwide textbook project supported by the World Bank in the Philippines significantly increased student learning while increasing costs per student by only 1 percent. When school budgets are squeezed, it is all too easy to cut or defer spending on learning materials. But this is a costly alternative if costs are considered in terms of the education provided rather than simply per student in school.
- Properly designed and supported radio projects have potential for improving learning (and in certain cases reducing costs). To take a well-documented example, in Nicaragua regular radio broadcasts achieved dramatic improvements in mathematics for primary students. Although new technologies and growing experience are increasing the educational potential of television, lack of rural electricity and the high costs of capital, maintenance and operation put it out of reach for most countries.

Research into these approaches has indicated important potential, but it remains to be seen how much they can improve quality within the constraints of politically feasible budgets. This underlines the importance of finding cheap ways to improve quality if the educational gaps between developing and developed countries, and between rich and poor in developing countries, are to be narrowed.

Health

In general terms, the determinants of health have long been well known. One is people's purchasing power (which depends on their incomes and on prices) over certain goods and services, including food, housing, fuel, soap, water and medical services. Another is the health environment—climate, standards of public sanitation and the prevalence of communicable diseases. A third is people's understanding of nutrition, health and hygiene.

Knowledge is still evolving, however, on the relative importance of these different factors, and on the best ways to deploy government resources to improve health. By the end of the 1960s it was increasingly plain that health care systems modeled on those in the developed world were not the quickest, cheapest or most effective way to improve the health of the majority of people in developing countries. The 1970s have thus witnessed the evolution of a much broader approach to health policy, including an emphasis on universal low-cost basic health care. But despite some successful experiments, "primary health care" is still more of a slogan than a nationwide reality in most developing countries. To change this is the greatest health challenge of the 1980s.

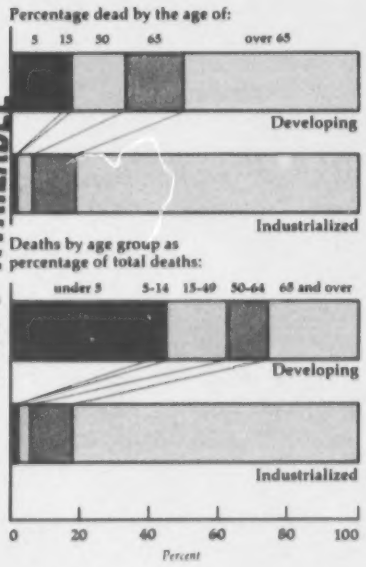
Life expectancy and mortality

There is considerable variation among developing countries. In 11 of the richer ones, life expectancy is 70 years or more—close to the average level (74 years) in industrialized countries. But in low-income countries, life expectancy averages only 50 years, and several countries are under 45. Thus despite the health improvements that have occurred throughout the developing world over the past three decades, the gap between developed and developing countries remains wide.

Babies born in a developing country will on average live 20 years less than those born in the industrialized world. About half of this difference can be explained by what happens in the first five years of life. Some 17 percent of children in developing countries (and more than 30 percent in several of the poorest) die before their fifth birthday; in industrialized countries, only about 2 percent do. Mortality rates among children aged one to four in low-income countries are frequently 20–30 times those in industrialized countries, and sometimes even more. Although the gap tends to narrow

as average incomes rise, in a number of countries with 1978 incomes of more than $900 (including Jordan, Turkey, Algeria and Guatemala) the chances of a child dying between its first and fifth birthdays were still at least 10 times as great as in industrialized countries. On average, for children in developing countries who reach the age of five, further life expectancy is still eight to nine years

Figure 5.2 Death by age groups: developing and industrialized countries, 1980[a]



a. At current mortality rates.

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less than in developed countries—and they are much more likely to suffer from disease (see next page).

The very high death rates among young children, combined with high birth rates, mean that a tragically large proportion of the deaths in a developing country occur among children under five (see Figure 5.2). For example, in Brazil in 1975 they were 48 percent of all deaths. In Sweden they were 1 percent. The main causes of child deaths in developing countries are diarrheal diseases and respiratory infections, especially influenza and pneumonia. (It has been estimated that diarrheal diseases cause 5–10 million deaths a year and respiratory diseases 4–5 million, making them by far the biggest killers for the population as a whole.)

Other diseases that make adults ill may be fatal in young children. Malaria, for example, has been estimated to kill 1 million African children a year. Common childhood diseases, such as measles, diphtheria, whooping cough and polio, which have either been virtually eliminated from developed countries or else reduced to minor nuisances, can be fatal or crippling in developing ones. A case of measles is often more than 200 times more likely to kill a child in a developing country than in an industrialized one. All of these diseases can be prevented by vaccination, yet fewer than 10 percent of the children born each year in the developing countries are being protected.

A major reason that these infections so often lead to death in preschool children in developing countries is their interaction with malnutrition, especially among children between six months and three years old. As a result, malnutrition appears to contribute to between one-third and two-thirds of all child deaths, and perhaps even more in the poorest countries. A comprehensive study of 35,000 deaths in 14 communities in Latin America found that 34 percent of deaths of children under five had serious malnutrition as an underlying or associated cause. An additional 23 percent of deaths were associated with premature births, which themselves partially reflected maternal malnutrition.

Compared with children, adult mortality patterns in developing countries show a much greater similarity to those in developed countries. There is also less difference between urban areas in developed and developing countries than between rural areas, since people who live in urban areas have higher incomes, are better educated and have better access to health care. About 60–70 percent of physicians in Africa work in urban areas, where about 20 percent of the population lives. Latin America is relatively well endowed with physicians, but two-thirds of them serve the large cities where only a third of the population lives. This gap is much wider than can be justified on the grounds that specialized referral services must be located in towns.

Some of the health problems of developed countries, however, are magnified in developing ones. The need to achieve competitive costs has led industries in some developing countries to adopt lower standards of job safety than prevail in advanced countries, and accident rates are high. Similarly, the number of deaths per automobile is much greater than in advanced countries; for example, it is more than 100 times higher in Nigeria than in the United States and 16 times higher per vehicle-mile. The joint use of roads by pedestrians, animals, bicycles and motor vehicles is a major reason for this.

Even though many of the diseases and much of the death in developing countries reflects an unhealthy environment, there are significant differences between rich and poor (see Table 5.6). The poor, whether urban or rural, are more likely than the rich to live where diseases are endemic, and less likely to take preventive measures or to seek prompt medical care even when it is available. A poor family is much less able to tide itself over while a breadwinner is ill; even a relatively minor illness may plunge it from poverty into destitution.

Table 5.6 Differences in life expectancy within countries

Country and region	Income (national average = 100)	Life expectancy (years)
Brazil, 1960–70		
Northeast region	54	47.9
Southeast region	122	62.8
Tanzania, 1973		
Kigoma region	46	43.0
Kilimanjaro region	215	55.0
Thailand, 1969–70		
North region	78	55.6
Bangkok region	248	63.7

Illness

Nonfatal diseases are more common and more serious in developing than developed countries. But the relatively small proportion of people over the age of 65 in most developing countries considerably reduces the significance of chronic, degenerative diseases—which affect about a third of the elderly in the United States, for example.

The most widespread diseases in developing countries are those transmitted by human feces—the intestinal parasitic and infectious diseases, but also poliomyelitis, typhoid and cholera. These spread easily in areas without safe community water supplies and good hygiene practices. While they are leading causes of death in young children, they are frequently chronic and debilitating rather than causes of acute illness or death. Their incidence is high. For example, the WHO estimated that in 1971 about 650 million people had ascariasis (roundworms). A World Bank study of construction workers at three sites in West Java, Indonesia, found 85 percent infected with hookworm.

Of the other diseases that usually cause debilitation in adults rather than death, tuberculosis in particular remains extremely widespread. Most debilitating diseases transmitted by insects or other carriers tend to be geographically more concentrated—although in 1976 it was estimated that 850 million people lived in areas where malaria persisted despite efforts to control it, and another 345 million in areas with little or no control. Schistosomiasis (bilharzia) is carried by snails, which flourish in slow-moving water. It is severe in East Asia, East Africa and in irrigated areas of Latin America; an estimated 180–250 million people are infected.

Trypanosomiasis (sleeping sickness) is found in a wide band in the middle of Africa. It is generally fatal if untreated in the early stages. Carried by the tsetse fly, it was largely under control in the 1950s, but has revived because control measures have slackened. It constitutes a serious risk to the life and health of at least 35 million people and has imposed great losses on animal herds. Chagas' disease, the Latin American form of trypanosomiasis, remains endemic in many rural areas.

Onchocerciasis (river blindness), carried by the simulium fly that breeds in swift-running water, is hyperendemic in parts of West Africa and Central America. In some areas it has led to the depopulation of fertile river valleys.

Attempts have been made to control these diseases by eliminating disease carriers through chemical and environmental mechanisms, but with only limited and in some instances temporary success. In some cases effective drugs exist. Control requires a well-developed health service to monitor outbreaks of the disease and take remedial measures.

For children, illness obviously disrupts their attendance at school and reduces their ability to concentrate and learn. As for adults, research on the consequences of their diseases has been very limited and has not produced consistent or generally applicable conclusions. Some studies have shown that malaria control sharply reduced absenteeism—from about 35 percent to about 3 percent in one program in the Philippines in 1947. Anthropological research suggests that settlement on fertile lands has often been prevented by major diseases. There have been surprisingly few detailed studies of the effects of illness on productivity of individual workers; more research is needed in this area.

It is also likely that disease discourages innovation, by making people more reluctant to take risks or to commit themselves to activities where precise timing is crucial. A study of Paraguayan farmers suffering in varying degrees from malaria found that severely affected families obtained lower yields, cleared less land and avoided cultivating crops that required labor at specific times. In industry, capital may be substituted for labor where workers are frequently absent because of endemic disease.

Difficulties of improving health

In its early stages, slowly declining mortality in Europe largely reflected improved nutrition, housing and hygiene brought about by rising incomes. The spread of education also helped. The initial stages of declining mortality in developing countries have been based on an additional factor—new technologies that affect masses of people, such as pesticides and vaccinations. It is estimated that life expectancy in developing countries in 1970 would have been eight years less than what it was without the contribution of these changes in public health technologies.

But some diseases, including most causes of diarrhea and many respiratory infections, cannot be prevented by currently available immunization or pesticides. Their reduction comes through improvements in sanitary conditions and

nutrition, and changes in individual health habits. These diseases have declined least in developing countries and contribute most to mortality in those countries today.

There has been considerable concern that developing countries, particularly in the high mortality areas of Sub-Saharan Africa and South Asia, have not maintained the momentum of the 1950s in reducing disease. This is largely because countries have moved beyond the "technological" phase of improving health: the closer they come to developed-country levels, the harder it is to progress at the same rate. It also reflects the fact that some communicable diseases have increased. The number of cases of malaria, for example, rose nearly threefold between 1972 and 1976; other diseases have also spread, though not so sharply.

These reversals have happened partly because authorities became overconfident and allowed control programs to run down. In addition, control became much more expensive in the early 1970s. Pesticide prices escalated and disease carriers developed a tolerance for common, inexpensive pesticides (especially DDT). Economic development has sometimes made matters worse: small-scale irrigated agriculture has expanded agricultural production—but also the habitat of snails that carry schistosomiasis.

Programs to control endemic diseases—especially malaria and sleeping sickness—now exist in most of the affected areas. They can be operated effectively without people changing their behavior (though this is less true of schistosomiasis, since people as well as snails play a role in its transmission). Pesticides can often be used more efficiently.

There is also room for better coverage by immunization programs, even in areas not otherwise provided with government health services. Sierra Leone, for example, employs recruitment teams; they enlist the help of local leaders in gathering together everyone who needs to be immunized immediately before the vaccinators arrive in the village.

Apart from these efforts, major progress in family health behavior and in the provision of health services is needed. Simple treatment can frequently be effective: for example, the lives of children with acute diarrhea can often be saved by feeding them a solution of water, salt and sugar (see box). Education, especially of mothers, is important. Studies in 29 developing countries have shown that infant and child mortality were consistently lower the better educated the mothers; each extra year of schooling on average meant nine per 1,000 fewer infant and child deaths. Cross-country studies (see box on page 38) confirm that literacy has a strong, favorable effect on life expectancy. And as discussed below (see pages 66 and 67) family planning services can contribute directly to better health of mothers and children.

Improved water supplies and waste disposal are important in the long run in reducing disease. But they must be accompanied by better hygienic practices if they are to be fully effective. Where funds are short, water supply networks in urban areas usually deserve priority over sewers, which

Oral rehydration

A simple innovation has revolutionized the treatment of a major killer in developing countries. Diarrhea normally stops on its own accord after three to five days, but it occasionally causes a severe loss of body fluid; the resulting dehydration is often fatal, particularly to young children. Replacing that fluid can prevent most deaths.

For more than a century, fluid has been intravenously "dripped" into sufferers—a method with obvious drawbacks in countries where there are few medical facilities. In the past 12 years it has gradually been established that an oral dose has just the same effect. Even during diarrhea, the intestine continues to absorb glucose—and glucose will carry water and essential salts with it.

Oral rehydration had its most impressive initial success in 1971, in camps for refugees from the Bangladesh war. More than 3,700 patients were treated in two months under extraordinarily difficult circumstances, with a case fatality rate of 3.6 percent instead of the 30 percent before the treatment began. Oral rehydration has since been used to prevent or treat dehydration due both to cholera and to other diarrheas in many countries of Asia, Africa and Latin America. Properly delivered, it could save millions of lives a year.

The WHO currently recommends an oral rehydration mixture consisting of: table salt (sodium chloride), 3.5 grams; bicarbonate of soda, 2.5 grams; potassium chloride, 1.5 grams; and glucose, 20 grams. These ingredients are usually mixed and packaged beforehand; the health worker (or a child's mother) simply dissolves the mixture in one liter of water. Prepackaged mixes range in cost from $0.07 to $0.10, and one to three packets might be needed while the diarrhea lasts.

There now is considerable interest in the possibility that mothers could mix a dose from the two ingredients that are available in most homes—sugar and table salt. But the recipe lacks potassium and bicarbonate (both of which are lost during diarrhea), and using too much salt could be dangerous for the child.

Home-mixing and the standard WHO formula are not, of course, mutually exclusive. One report (based on a field experiment in Narangwal, India) recommended home-mixing for relatively mild cases of diarrhea, with a variant of the WHO formula used only for more severe ones. This experiment placed principal responsibility for treatment in the hands of auxiliary nurse-midwives (who live in the villages) and the mothers of affected children. While the incidence of diarrhea changed little after the new treatment was introduced, the case fatality rate declined by almost half—from 2.7 per 1,000 to 1.5 per 1,000.

are more expensive and less critical to health. (Latrines, septic tanks and other lower-cost alternatives to conventional sewerage are less likely to contaminate water supplies if the water is centrally treated and distributed under pressure in pipes.) But water supply systems must be maintained—something that is frequently neglected. A World Bank review of village water supplies found two countries in which systems were failing faster than they were being constructed.

Although heavy investment in water supplies is often warranted as a means of raising living standards, it is unlikely to produce quick or dramatic improvements in health—and is expensive for low-income countries. Even public standpipes and yard taps, while much cheaper than conventional house connections with internal plumbing, can cost more than $40 per person (in 1978 prices). In contrast, immunization against all common childhood diseases costs at most $5 per child.

Availability of health care

The amount spent on health care varies widely throughout the developing world, though it is typically very low. Government health budgets in low-income Africa and Asia are usually less than $5 per person a year (and frequently much less). Private outlays are often larger—in Bangladesh, for example, individuals spent an estimated $1.50 each in 1976, or three times what the government was spending. But the combined total of $2 compares with about $700 in the Federal Republic of Germany. This gap would remain huge even if allowance were made for differences in prices. It is thus not surprising that in the mid-1970s in Bangladesh there were 9,260 people per physician, 5,600 per hospital bed, and 42,080 per nurse or midwife, compared with 490 per physician, 80 per hospital bed, and 260 per nurse in the Federal Republic of Germany. (Some of the middle-income countries, though, have almost as many physicians per person as the developed countries do.)

For many necessary but simple medical tasks, paramedical workers are likely to do a better job than physicians, who may be dissatisfied with their work in rural areas and so turn to private practice. In many countries, however, there are even fewer nurses than there are doctors.

In many developing countries, people typically live in scattered, often small villages and cannot travel far. They are therefore unwilling or unable to seek out modern health facilities in urban areas, except in extraordinary emergencies. Moreover, where rural health facilities are available, they are usually far too small to employ a physician full time—and certainly too small to make efficient use of equipment and auxiliary staff. Although occasional visits by traveling doctors and nurses can help, they are obviously unable to provide services at short notice. They may also not develop sufficient individual rapport with patients.

Primary health care

The widespread provision of basic preventive and curative medical services is essential. But in an attempt to tackle both the broader causes of health problems and administrative, political and other implementation problems (see Chapter 6), the WHO and UNICEF have recently sponsored a concept called "primary health care" that goes far beyond these services. It is an integrated approach to health that also spans food production, education, water and sanitation; in addition, it emphasizes self-reliance and partnership between communities and government.

The concept has achieved widespread intergovernmental support, especially from the 1978 International Conference on Primary Health Care. This has been no mean political achievement; but in most countries the rhetoric still must be translated into more money and reorganized health systems.

A key element of primary health care, or of any health care system that attempts wide coverage at relatively low cost, is the use of community health workers (CHWs) with limited training both to provide front-line services and to refer seriously ill patients or special cases to larger dispensaries and hospitals (see box overleaf). The potential duties among which their time must be allocated are maternal and child health care, midwifery, family planning, treatment of injuries and helping to move seriously injured people to referral facilities. In addition, they may organize immunization and mass treatment programs, provide guidance on nutrition, family planning and hygiene, and monitor epidemics, water quality and sanitation.

Although several examples (including China—see box on page 74) have shown that effective primary health care is feasible even for low-income countries, it makes fairly heavy administrative demands. An effective coordinated approach is needed—involving careful selection and training of CHWs, thorough supervision, referral of serious cases to better trained and equipped people, and adequate (but controlled) availability of drugs and other supplies. Without this, CHWs are likely to become demoralized, discredited and inefficient—and their recommendations for curative and preventive care disregarded.

Moreover, the emphasis that this *Report* (and others) gives to

Lessons of experience

National experience with primary health care systems is still very limited. The Chinese barefoot doctors date from the mid-1960s (see box on page 74). During the 1970s countries as diverse as Iran, Brazil, Sudan, India, Jamaica, Botswana and Tanzania began large-scale systems. Their experience has shown which are the key requirements of success.

• Political support and finance. It is vital to secure the support of a substantial share of the country's "health establishment"; without this, sound medical supervision and adequate finance will not be possible, and primary health care will be little more than an empty gesture toward the poor. It is also important to ensure that this type of medicine is not mislabeled as "second rate."

The Community Health Worker (CHW) should work cooperatively with the community, if possible through such recognized organizations as the local council or village development committee (as they do in Botswana and Sudan). This builds community support and increases chances of improving family health practices; hours of service, use of drugs and materials, and patient satisfaction can also be monitored. The community organization should have access to the supervisor of the CHW.

At least part of the CHW's salary should be paid by government so that health officials can retain some control. But some local finance or voluntary efforts also make the CHW responsive to local concerns—and in turn can make the community more aware of the services offered. The government of India is providing a stipend of 600 rupees a year ($76) to "volunteer" health workers. Whether local pressures work in the interests of the poor depends on the degree to which the local political system reflects these interests. China has succeeded in making the community entirely responsible for compensating the CHW. But overreliance on local finance may mean that the poorest communities get the worst attention.

• Recruitment and training. The CHW should be mature enough to enjoy the respect of the community. Early programs stressed formal education as a qualification for the CHW, and thus recruited young people. Reviews of experience in Sudan clearly indicate that such people are not easily accepted by communities. Ideally the CHW should have children and personal experience with health crises. Programs now recruit highly motivated, older people even if younger applicants are better educated. The CHW also should live in the community; this has been found to reduce turnover as well as ensure familiarity with local culture. In some countries, such as Iran and Yemen, it has been necessary to train both a male and a female CHW because of objections to treatment by members of the opposite sex.

Community health workers must be given enough training, equipment and supplies to ensure that only one patient in four or five is referred to higher levels. High referral rates undermine the community's confidence in the CHW and also increase the probability of patients bypassing him or her. This conclusion has been confirmed by studies in Mexico and Thailand. Moreover, several countries feel that CHWs should have the chance to develop their careers, by competing for entry into higher grades. Sudan, for example, is planning to confine its "medical assistant" training programs to CHWs.

• Supervision and supplies. Frequent supervision of the CHW is essential. The isolated, modestly trained CHW is rarely confident of his or her skills and often encounters difficulties that instructors did not anticipate. Experience in Tanzania underlines the need for sound, continuous supervision. Supervisors should both provide in-service training and ensure that performance meets minimum standards. Iran, Sudan and Botswana have found that it is better to overestimate the amount of supervision needed than to risk undermining the confidence and credibility of the CHW. Workers should be visited regularly by staff from neighboring dispensaries, health centers and hospitals as well as from the office of the regional medical officer. This compensates for frequent transport difficulties or competing demands on the supervisor's time. In addition, it ensures that a broad range of issues (from clinical care to drug management) are considered, and that visits from the outside are regarded as routine, not part of a crisis.

Providing facilities for telephone or radio contact between CHWs and supervisors has provided backup and helped avoid unnecessary referrals in Honduras, for example. Physicians or highly trained health personnel often give curative work priority over supervision of CHWs—so nontechnical personnel should also play a part in the supervision and monitoring of CHWs.

A standard, simple set of drugs should be provided to CHWs; if budget cuts are necessary, they should not fall on medicines and supplies for the CHW (as has sometimes been the case). Standards are required for the use of drugs and supplies; and the drugs provided to individual CHWs should be monitored to identify misuse or misappropriation. Kenya has developed a model program for managing drug use, based upon carefully devised treatment standards.

primary health care should not detract from the importance—or understate the difficulty—of striking the right balance between community level activities and the back-up system that provides referral services and supervision. Rural health centers, urban clinics or district hospitals should deal with various illnesses that are beyond the scope of a CHW (though even they may not need a full-time physician). These should come under the umbrella of a referral hospital with laboratory, x-ray facilities, an operating theatre and beds. (China, interestingly, has given much more emphasis to the referral system than is generally recognized.) Depending on population densities, transport, and incomes, the hospital could serve 100,000 to 250,000 people and oversee the activities of three or more clinics and about 50 CHWs.

The balance struck between the various levels of the health care system will depend on many factors, including financial and political support for the objectives of primary health care, administrative capabilities, the receptivity of those to be served, the extent of urbanization, and national income. Higher-income countries can afford to reduce the ratio of persons covered

per hospital and clinic, and to staff and equip them better. But even in industrialized countries, there is a strong trend toward more emphasis on paramedical workers to improve the spread and effectiveness of basic health care and to help keep costs down.

In many countries it is also desirable to make use of, and provide some training for, traditional health practitioners, such as "ayurveds" in South Asia and the traditional birth attendants found in almost every country. This is partly because they often have the trust of their patients and because patients pay for their services (enabling government funds to be spread farther); but it is primarily because in many countries, including some of those where the world's poor are concentrated, these practitioners provide near-universal coverage of people who, realistically, will not be reached by effective government health programs for some time to come. Training can help them to improve their treatment, dispense some modern medicines and participate in health or family planning education.

In addition, there is still an urgent need for research to develop measures to prevent or treat common disabling diseases—for example, malaria, schistosomiasis and the main causes of diarrhea in children —that are simple and cheap enough to be applied within the framework of a primary health care system.

Nutrition

Systematic efforts at national nutrition planning in developing countries go back barely a decade. During that brief time there has been considerable progress in establishing the extent and causes of malnutrition and what can be done to reduce it.

Ten years ago, malnutrition was often thought to reflect primarily a shortage of protein (and in some cases, vitamins or minerals). Most nutrition programs concentrated on providing high-protein food to children, usually in schools. The emphasis today is different. There is now a wide measure of agreement on several broad propositions.

- Serious and extensive nutritional deficiencies occur in virtually all developing countries, though they are worst in low-income countries. They are usually caused by undernourishment—a shortage of food—not by an imbalance between calories and protein. There may often be shortages of specific micronutrients and of protein, especially among young children. But given the typical composition of the diets of the poor, to the extent that calorie requirements (as estimated by the FAO and the WHO) are met, it is likely that other nutritional needs will also be satisfied.
- Malnutrition affects old and young, male and female, urban and rural dwellers; particularly prevalent among children under five, it reduces their resistance to diseases and is a major cause of their death. In many societies, girls suffer more than boys.
- Malnutrition is largely a reflection of poverty: people do not have enough income for food. Given the slow income growth that is likely for the poorest people in the foreseeable future, large numbers will remain malnourished for decades to come.
- Poor nutritional practices and the inequitable distribution of food within families also are causes of malnutrition.
- The most effective long-term policies are those that raise the incomes of the poor, and those that raise food production per person. Other relevant policies include food subsidies, nutrition education, adding minerals or vitamins to salt and other processed foods, and increasing emphasis on producing foods typically consumed by the poor.

These points will be amplified in the following discussion.

Prevalence of malnutrition

Evidence of serious malnutrition in almost all developing countries comes from three main sources: estimates of food consumption, anthropometric and clinical studies, and data on child mortality.

The estimates of food consumption by different income groups normally show that in all but the richest developing countries, consumption by large sections of the population is well below what is needed for a minimally satisfactory diet. Undernutrition is most widespread in Africa (where in many countries food supplies have not even kept up with population growth) and in South Asia. It is also common in Latin America and the Middle East. Estimates of the total number of malnourished people are surrounded by controversy: there is dispute about what calorie and protein requirements are on average "adequate"; individuals may have requirements very different from the average; and within households food often is not distributed in proportion to individual needs. Nevertheless, allowing a wide margin for uncertainties, the evidence is strong enough to conclude that several hundred million people are undernourished.

Anthropometric and clinical studies (based on measures of height, weight for height, arm circumference, skin-fold thickness, blood tests and so on) show, for example, that children from wealthier families, or from families that have migrated to developed countries, tend to grow substantially taller than do children of the poor.

The data on child mortality

reflect the combined effects of sickness and malnutrition. Infections can reduce appetite and food intake in several different ways, including the action of intestinal parasites; and they can reduce the proportion of nutrients that the body absorbs. Undernutrition in turn weakens the body's immunizing mechanisms—and so lowers its defenses against the initial infection, while making it more susceptible to further infections. As previously noted, malnutrition is estimated to be a contributory cause of a third or more of infant and child deaths in developing countries (see page 54).

Kinds of malnutrition

Most malnutrition reflects a shortage of calories, protein, or both. But some diets are inadequate because they lack specific nutrients. Anemia, resulting primarily from blood loss and too little iron, is the most prevalent example of this. A recent estimate is that at least 500 million people are anemic. The consequent fatigue, the apparent lethargy and apathy, and the adverse effects on productivity and school performance can be so common in poorer societies as to appear normal. It is estimated that more than half the victims of anemia are adult women in developing countries. Anemia due to iron and folic acid deficiency is common among pregnant women—and harmful, because it can lead to premature birth and a much lower chance of survival for the newborn child. The more children a woman has, the greater the probability of severe anemia—so adding to the cycle of poverty, high fertility and low rates of child survival.

Goiter is another common disorder (affecting perhaps 200 million people) caused by a micronutrient deficiency—in this case, iodine. Available evidence suggests that iodine deficiency can stunt physical and mental development, and reduce energy and motivation. In communities that have an exceptionally high incidence of goiter, 4 percent or more of children may be deaf-mutes or cretins.

Vitamin A deficiency is also extensive—affecting, it has been suggested, half the children in many developing countries. In an extreme form it can lead to blindness. But in less serious forms it can still lead to poor eyesight, undermining educational performance and adult earning power. It can also affect growth, skin condition and the severity of other nutritionally related illnesses.

Victims of malnutrition

Young children suffer most from undernourishment, followed by pregnant and nursing mothers. In many countries, there is considerable evidence that girls are less well nourished than boys. This is especially true of South Asia, where newborn girls have significantly smaller chances of surviving to age five; in a number of countries, including some in the Middle East, girls are weaned substantially earlier than boys (see box on page 91).

Most childhood malnutrition does not result in early death. But it means severe hardship beginning at birth, which may prevent children from ever escaping the poverty into which they were born. Malnutrition stunts growth; in severe cases it may retard mental development even after its physical effects have been shaken off. Several studies have shown that children who have recovered from severe clinical malnutrition during their preschool years continue to do significantly worse in intelligence and other tests than their unaffected classmates.

There is also some evidence, less conclusive, of the harmful effects of mild long-term malnutrition; some studies in developing countries have shown that better-nourished children (as measured by height for age) do better in mental tests. It is not always possible to isolate nutrition from other factors affecting intelligence, but there is some evidence of its independent effects.

Malnutrition also affects earnings. In part, this reflects the consequences of childhood malnutrition on mental development and educational achievement; but there are also links between nutrition and physical productivity. In the long run, adults can only be as energetic as their diets will allow—otherwise they would gradually become emaciated and ill. For example, farmers who are badly malnourished put in fewer hours per hectare than those who are better nourished. Research on the relation between nutrition and productivity has not been extensive, but a few studies have suggested that greater height or weight leads to greater physical productivity.

In contrast to most other indicators of well-being, malnutrition in many countries appears to be at least as serious in urban as in rural areas. Surveys in India, Brazil, Thailand and Indonesia have shown that the proportion of the population with very low calorie consumption is substantially greater in urban areas. This is partly because of the higher cost of food in many urban areas (although not in those with food subsidies) and higher expenditures for such things as house rents and public transport.

But to some extent it is a sign that living and working in cities is less physically demanding than in rural areas, rather than an indicator of greater malnutrition.

In any event, because the poor are primarily rural, malnutrition remains primarily a rural problem. Rural populations are also more likely to suffer seasonal variations in food consumption; they are most affected in the wet season, when twin

peaks in farm work and widespread infection often coincide with the period when food is in shortest supply.

Causes of malnutrition

To what degree is malnutrition, especially among young children and pregnant and nursing mothers, caused by (a) inadequate family incomes, (b) ignorance of good nutritional practices and (c) the inequitable distribution of food within families? There is some evidence that all three factors are important, but that low incomes are the central cause.

The famines in Ethiopia in 1973–74 and Bangladesh in 1974 were not caused by a fall in the average amount of food available per person. Rather, droughts caused local declines in farm incomes, so that people in affected areas could not afford to buy food from the unaffected areas.

At the global level, if income were distributed differently, present output of grain alone could supply every man, woman and child with more than 3,000 calories and 65 grams of protein per day—far more than the highest estimates of requirements. Eliminating malnutrition would require redirecting only about 2 percent of the world's grain output to the mouths that need it.

Major crop failures, which simultaneously reduce rural incomes and national food supplies, can have even more catastrophic effects on nutrition. While improved transport and international movement of food will reduce the impact on prices, events such as the two monsoon failures in India in 1965 and 1966 can have a terrible impact on the poor: supplies of basic food grains fell 12 percent and prices rose sharply. Relative to the prices of manufactured goods, they were 37 percent higher in 1967 than in 1963–65. In addition, the crop failures cut the incomes not only of farmers, but also of agricultural laborers, petty traders and workers in food-processing industries.

Poor people spend the bulk of their income on food. In India in 1973–74 the poorest 20 percent were devoting 83 percent of their total spending to food—yet on average ate fewer than 1,500 calories a day each. At these very low levels, the consumption of calories (usually derived from the cheapest kind of food) changes almost proportionately with changes in income. As incomes rise, a little margin enters the budget (see box).

A lack of money is frequently compounded by poor nutritional practices. Several common beliefs about nutrition have harmful effects and must be attributed primarily to ignorance rather than poverty. For children, the weaning period is particularly critical. While it is desirable to continue breastfeeding for the first year of life, milk should be supplemented by solid food by six months of age; this is often delayed. It is also likely that the poor nutrition of pregnant and nursing mothers may at least partly reflect a lack of knowledge. Several studies have found that better-educated parents have better-nourished children: that this reflects more than the higher incomes of educated parents is suggested by the fact that the mother's education is more important than the father's.

Education—especially girls' education—may also help remedy one of the most serious and intractable nutritional problems: the way food is distributed within the family. A variety of evidence indicates that in most developing countries adult

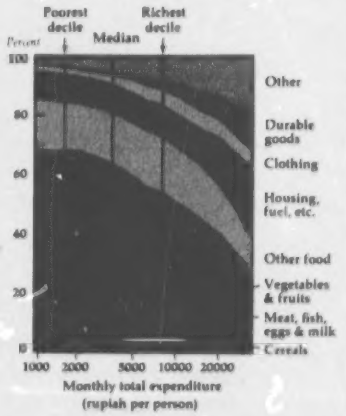
Food and the poor

As people get higher incomes, they eat better—and spend proportionately less on food. The chart shows household spending patterns in Indonesia, but its essence applies to every developing country. The richest households spend a higher proportion of their total budget on housing, fuel, light and water than the poorest do on all nonfood items.

The composition of diets varies, too (a fact whose implications for policy are explored on page 62). The poorest 30 percent of people in Indonesia obtain about 40 percent of their calories from cassava and corn and 46 percent from rice, while the richest 30 percent obtain only about 14 percent of their calories from cassava and corn and 59 percent from rice.

Not only is food the main element in poor people's budgets; but preparing it takes up a lot of their time. Rice must be threshed, winnowed and hand-milled to remove the husk and bran; wheat and maize must be threshed, winnowed and ground to produce flour; cassava must be skinned, boiled, pounded, strained and dried to get rid of its deadly prussic acid; spices must be ground by hand; and so on—all before any actual cooking is done.

Composition of expenditure, by income group, Indonesia, 1976



One study in a Java village found that on average a woman works 11 hours a day. Roughly six hours are spent on income-earning activities (wage work, handicrafts, producing food for sale). The other five hours are spent around the home (collecting firewood, looking after children, sweeping and so on)—and preparing food, which takes three hours a day.

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women receive a lower proportion of their food requirements than adult men; girls are likewise generally less well-fed than boys. As between adults and children, the picture is less clear: in many countries children under five (and particularly up to age three, when they are less able to take food themselves) do much worse than adults; in some countries, though, this is not the case.

These sorts of discrimination sometimes reflect difficult choices made under severe economic duress, including a justifiable concern for the breadwinner. But they also reflect ignorance of nutritional priorities and deep-rooted cultural biases. (Concern for this problem appears to have been one of the reasons for the Chinese experiment with communal feeding during the Great Leap Forward in 1958–59. It encountered massive social resistance and was abandoned.)

Nutrition policies and programs

The causes and consequences of malnutrition suggest various cures. Boosting food production (especially of food that poor people eat and grow) and raising the incomes of the poor are the two central requirements in most countries. They can be reinforced by other efforts—food subsidies of various kinds, fortifying food, and educating people to know what a good diet is.

AGRICULTURAL PRODUCTION. Increased food consumption by the poor is in most countries unlikely to be sustained unless production is raised as well. For nutritional purposes, much can be achieved by producing more of what the poor traditionally eat—such as millet and other coarse grains and root crops. These are, in general, the cheapest source of calories. They have other advantages, too. Some of them require less irrigation and drainage than other crops; and, in the case of root crops, many can be grown throughout the year and some are drought-resistant. In addition, both root crops and coarse grains tend to be produced by small farmers, who would benefit if encouraged to produce more.

Coarse grains can often be grown together with low-cost vegetable sources of protein. Although cassava is very low in protein, studies show that its price is so low that most of the people who meet most of their caloric needs by eating a lot of it are able to buy enough protein-rich food to balance their diets. But there has not been enough emphasis on the production of cheap sources of protein, such as the cheaper varieties of beans and lentils.

Despite long-standing neglect in research, extension services, access to credit and so on, in recent years there has been greater awareness of the importance of foods eaten by the poor. The international agricultural research centers (in particular those in India, Colombia, and Nigeria) have increasingly extended their research to these crops and have given more attention to nutritional issues.

Food marketing and storage programs can also have a major nutritional impact by reducing regional, seasonal and annual variations in food supplies and prices —which contribute significantly to malnutrition. Market stability can also be helped by better transport and roads.

FOOD SUBSIDIES. Few low-income countries have come near to nutritional adequacy without some form of food subsidies. Sri Lanka's ration-and-subsidy program in 1970 provided about 20 percent of the calories and 15 percent of the incomes of the poorest quintile of the population. Largely as a result, severe malnutrition was reduced to a remarkably low level for such a poor country. Because of this, and Sri Lanka's health and education services, life expectancy has reached 69 years. When subsidized food rations were sharply reduced in 1974, largely because of a steep increase in the price of imported food, Sri Lanka's death rate rose noticeably (even after allowances for other plausible influences); it declined again in 1976 and 1977, when food became more plentiful. Large-scale food subsidies are also common in the Middle East and North Africa; they have played a significant part in improving the nutrition of the poor.

But general food subsidies have a major drawback—they are very expensive. They have cost as much as 10–20 percent of government spending in some countries, including Egypt South Korea (temporarily in 1974–75) and Sri Lanka. Much of the cost is for imports, which use up scarce foreign exchange or aid. And some of this goes to people who do not really need to be subsidized.

Countries with strong administration can organize income tests —not perfectly, but well enough to cut costs. Sri Lanka, for example, could have done more for the nutrition of the poor in 1974 if it had concentrated the available rations on them. In 1978 it introduced an income test to restrict subsidies to the poorer half of the population. But for many countries this would not be administratively or politically feasible.

Alternative ways of restricting subsidies to poor people include subsidizing cheap foods that other groups tend to neglect. Sorghum, a low-status food, was introduced into ration shops in Bangladesh in 1978—and in some rural areas was bought by nearly 70 percent of low-income households, but only 2 percent of high-income households. Subsidized foods may be

confined to particular places. In Colombia the nutrition program assisted by the World Bank provides nutritionally enriched foods to specific age groups living in the poorest geographical areas, without a specific family income test.

The high cost of subsidies raises another difficulty—keeping the price received by farmers high enough to encourage food production. Governments may attempt to push down domestic food prices to cut the cost of subsidy programs; and farm prices may decline if too much food is imported for the subsidy program—more, that is, than the *net* increase in food consumption. But countries (and food-aid donors) can anticipate and avoid adverse effects on incentives. Well-designed subsidies should be able to reduce food prices for consumers and also (since this increases the effective demand for food) to maintain prices for farmers. And proceeds from food aid sold through subsidy programs can, for example, be used directly or indirectly to support agricultural programs. Introducing subsidies requires care, however, since the political cost of abandoning them is likely to be high.

SUPPLEMENTARY FEEDING PROGRAMS. Some countries have gone further and have tried to target assistance on the nutritionally most vulnerable—young children and pregnant and nursing mothers. In some cases food supplements have been given for home consumption; in others children have been fed directly. In both cases, however, benefits have been shared with the whole family—since if children get food outside the home, parents tend to give them less from the family pot.

Studies of some preschool feeding programs in the mid-1970s showed that schemes providing children directly with 300 calories a day gave them a net increase in consumption of about 100 calories. And only a small minority were in the most vulnerable group of all—under two years old. Such schemes tend to be relatively expensive: in a number of these projects, annual food costs averaged $10–17 per child, with administrative costs adding a further $3–7.

FOOD FORTIFICATION. Adding specific micronutrients to food at the processing stage is common in both developed and developing countries. But there are two general difficulties. First, those who do not need the supplement still get it, so that the cost per person needing assistance may be high, even if the cost per person receiving the supplement is low. Second, the poor may buy little processed food, and even that may be from small, scattered processors—so that fortification is hard or uneconomic to arrange.

The best results have come from adding iodine to salt to prevent goiter; almost all high-income countries and some developing countries have succeeded with this. Annual costs are much less than one cent per person. Such programs are not yet universal (but may not be effective if people get much of their salt from non-commercial sources or very small producers).

Vitamin A has been added to a variety of foods (including tea, sugar, margarine, monosodium glutamate and cereal products) in several developing countries. It is both effective and cheap—for example, three cents a person a year could provide 80 percent of Guatemalans with 75 percent of their daily requirements. Much more could be done.

Since anemia is so widespread, adding iron to food has been tried several times. There have been technical difficulties, but these may now have been overcome. But anemia is not due solely to iron deficiencies, nor is it easily cured; effective programs that can be universally applied are still some way off.

It may sometimes be more effective to administer extra nutrients directly (orally or by injections). India and Bangladesh have done this with Vitamin A (at six-month intervals). But reaching those at major risk every six months is usually impracticable. Many countries have provided iron plus folic acid pills for pregnant women; others have reduced goiter by injecting people with iodized oil (a single injection provides protection for three to five years).

NUTRITION EDUCATION. There have been few, if any, striking successes, but the potential effect of nutrition education is so vast that the attempt to increase knowledge about nutrition requires continuing strong support. Clearly, education must be realistic: urging poor families to buy milk might be harmful if they can afford it only by eating fewer calories.

Recent research on breastfeeding has confirmed the value of breast milk, not only for nutrition but also for transferring to babies some of their mothers' immunity against infections. In contrast, bottle feeding in unhygienic conditions tends to increase the risk of infection, and is expensive. The role of advertising in promoting infant milk formulas in developing countries at the expense of breastfeeding has been questioned. In 1979, at a meeting sponsored by the WHO and UNICEF, several major multinational food firms agreed to curtail direct advertising of infant formulas in developing countries. An international code of marketing is now under consideration by the WHO.

Nutrition education will be cheaper the more it can be made

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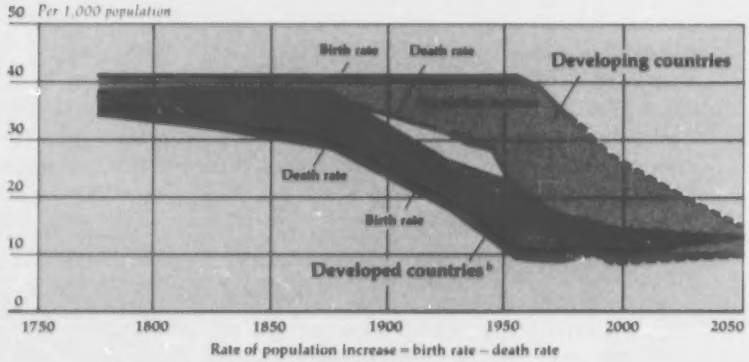
part of education in general, combined with information on family planning and health, or tied to community organizations or other credible and influential communications channels. In addition, several countries have experimented with rehabilitation centers for the severely malnourished, which not only save the child but show mothers how to feed their children at home. Others have experimented with mass media; relatively simple messages that do not risk being misinterpreted seem to have made people more aware of good practices, though they have not always been put into effect. The enormous amount of commercial advertising suggests that the value of mass media in promoting social programs has nowhere been adequately exploited.

PRIORITIES AND PLANNING. As in other areas, difficult choices must be made in tackling malnutrition. There are simply not enough financial, political or administrative resources to implement all the policies and programs outlined above. Some countries are attempting to assess relative priorities with the help of national food and nutrition plans. These should ideally be supported by successive sample surveys of nutrition status, food consumption and production patterns by income group and region—which can show, for example, the likely nutritional impact of alternative subsidy or production programs. Such plans, especially if effectively followed up, also offer a way to focus the attention of, say, agricultural ministries on the implications of nutritional priorities for agricultural research, pricing, extension and other policies.

Figure 5.3 Trends in birth and death rates, 1775–2050

(births and deaths per 1,000 population)[a]



a. Crude birth and death rates. The projected increases in death rates after about 1980 reflect the rising proportion of older people in the population.
b. Include industrialized countries, the USSR and Eastern Europe.

Fertility

In the past 10 years striking progress has been made in understanding the causes and consequences of high birth rates, and in helping to resolve two controversial and important issues.

- The dispute between those alleging that family planning programs had little effect on birth rates and those alleging that family planning alone could reduce birth rates has been greatly narrowed if not wholly settled. The evidence overwhelmingly suggests that both social and economic conditions and family planning are important in determining birth rates, and that they are mutually reinforcing.
- Accumulating evidence clearly contradicts the fear that health programs, by lowering death rates, will boost population growth in the long term. Although fertility seemed unresponsive to falling death rates during the 1950s and 1960s, it has since declined in many poor countries—partly in response to lower death rates—and population growth is slowing down.

Demographic trends and projections

Figure 5.3 compares past and projected trends in birth rates and death rates in developed and developing countries. Two points need to be emphasized. One is the rapid population growth in the developing world, after death rates plummeted in the postwar years, and the continued rapid growth projected for the rest of this century. The second is the drop in birth rates, which began in the 1960s in the developing world, and the resulting gradual slowdown in the population growth rate since then—from a peak of about 2.4 percent in 1965 to 2.2 percent now.

Since 1965, birth rate declines of at least 10 percent have occurred in the world's two most populous countries, China and India, and in a number of other major developing countries—Indonesia, the Philippines, Thailand, Turkey and South Korea. Moreover, the recent rate of decline has been faster in today's developing world than it was in the 19th century in Europe and the United States. England and the Netherlands took about 50 years to reduce their birth rates from 35 to 20 per thousand—or about one point every three years;

Indonesia, Colombia and Chile have recently cut about one point every year from their crude birth rates—though generally from higher initial starting points.

Thus the comparison of current birth rates between the rich and poor worlds should not obscure the progress some developing countries are now making in lowering fertility. Higher incomes, more widespread education and the growing acceptability of family planning programs have begun to reduce birth rates in most middle-income countries in Latin America and East Asia, and in some countries and regions of South and Southeast Asia. With continued socioeconomic progress the fertility decline is projected to spread to the rest of South Asia and, with some delay, to Africa, during the 1980s and 1990s.

Even with these fertility declines, however, world population will continue to grow. By 2000, World Bank projections (which are broadly consistent with other projections, such as those of the United Nations) indicate it will have risen from the current estimate of 4.4 billion to about 6 billion; the population of the developing countries (including China) is projected to increase from 3.3 to 4.9 billion. India will grow from 672 to 974 million people; Brazil from 126 to 201 million; Nigeria from 85 to 153 million. These projections are based on the assumption that current rates of social and economic progress, including the spread of family planning and health and education services, will continue; if they change, so will population growth (see box).

It is instructive to consider the consequences of an acceleration of fertility decline such as to cause the rate of population growth in particular countries to fall to zero 10 years earlier than currently projected. The size of the resulting stationary populations would be reduced by, for example, 200 million in India, 50 million in Nigeria and 36 million in Mexico.

Alternative population projections

How sensitive are population projections to changes in fertility and mortality rates? To illustrate, compare two projections for Brazil. The current World Bank projection assumes that the total fertility rate (TFR)—a measure of births per woman, standardized for age distribution—will decline from 4.9 today to replacement level (a TFR of 2.2) by 2015. The Brazilian government has not officially recognized rapid population growth to be a problem, but it does permit family planning for health purposes—and the use of contraceptives (mainly privately bought) is increasing.

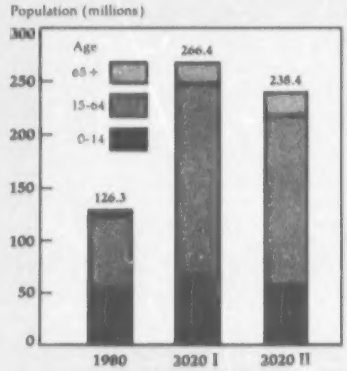
What would happen if fertility reached replacement level a decade earlier, in 2005? This is what the Bank projections assume for Colombia, a country with lower average incomes and roughly similar levels of literacy and life expectancy, but which already has a government-supported family planning program and significantly lower fertility (TFR = 3.7). For Brazil to match Colombia would require a sharp but not unprecedented fertility decline. Birth rates would need to fall from 36 per 1,000 people in 1978 to just below 20 in 2000—less than the fall of one point a year achieved in the past two decades by South Korea.

The figure illustrates the differences in the size and composition of the Brazilian population in 2020, under the alternative assumptions of replacement fertility in 2015 (Case I) or in 2005 (Case II). Two things to notice:

- Under either projection, the proportion of children in the population will decline substantially between 1980 and 2020. The current school-age (5–14) group of 32 million will increase by 10 million under Case I, only 4 million under Case II—compared with an increase of 14 million in the past 20 years, and 21 million in the past 40. In 2020 under Case II, children under 15 would constitute only 15 percent of the population, compared with 26 today.
- Even in Case II, the working-age population would more than double, from 70 million today to 163 million in 2020. On the other hand, the number of new entrants to the labor force would be considerably smaller. In 2020 Brazil will need to find about 4.5 million new jobs under Case I, but only 3.3 million under Case II.

Reaching replacement fertility in 2005, not 2015, would make a big difference in the eventual size of Brazil's stationary population (reached about 70 years later): it would be 287 million rather than 345 million.

Alternative population projections, Brazil



Poverty and high fertility

Poverty and high fertility are mutually reinforcing (see Figures 5.4 and 5.5). As discussed in Chapter 4 (page 39), rapid population growth is not always harmful. Reduction of population growth is not an end in itself; nor does it for every country or for every point in time increase the potential growth of income per person. But in the circumstances prevailing in most of the developing countries, rapid population growth impedes economic growth by reducing investment per person in physical capital and human skills. For individual families the number of children affects how much parents can invest in each one's health and education—and thus in their future earning power.

Quantitative analysis suggests that social and economic factors (such as incomes, literacy and life expectancy) accounted for as much as 60 percent of the variation in

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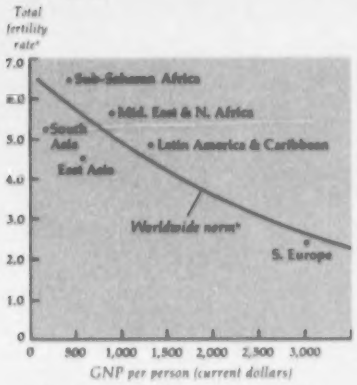
Figure 5.4 Income and fertility, 1978



a. See technical notes for Table 18 of the World Development Indicators.
b. Derived from cross-country equation relating total fertility rate to GNP per person.

fertility changes among developing countries from 1960 to 1977. The strength of family planning programs explained an additional 15 percent.

The strength of family planning programs is influenced substantially by socioeconomic factors (which account for about three-quarters of its variation). This helps explain why family planning programs in countries with high fertility, such as Pakistan, often appear weak even after years in operation. This weakness is often written off as simply lack of government effort. What the results suggest, however, is that programs tend to flourish where their services are in demand. Nonetheless, government efforts are vital.

Socioeconomic determinants of fertility

Fertility is an area of human behavior where individual tastes, religion, culture and social norms all play a major role. Yet evidence from large groups of people suggests that differences in fertility can be largely explained by differences in their social and economic environment. What are the mechanisms by which low education, poor living conditions, high death rates and lack of health and family planning services lead to large families?

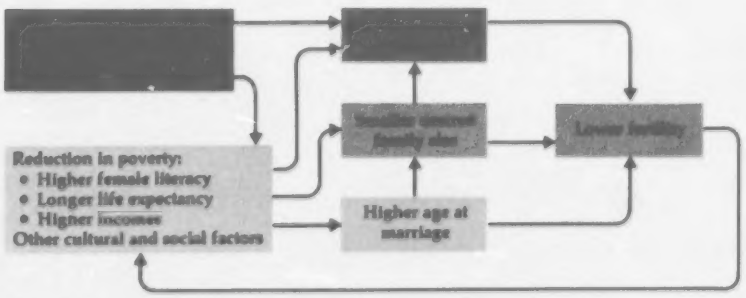
Consider the issue from the point of view of parents and potential parents. They receive pleasure from their children but have to spend time and money bringing them up. Children are also a form of investment—short-term if they work during childhood, and long-term if they support parents in disability or old age. Since children are a source of satisfaction, one might expect richer parents to want more of them. Yet the opposite is true, for several reasons.

The first is that the alternative uses of time—earning money, developing and using skills, leisure—become more attractive. This is particularly true for women, who are primarily responsible for bringing up children; as their opportunities for education and employment improve and their horizons expand, they often want a smaller family. Second, with increasing income, parents apparently prefer healthier and better-educated, but fewer children. They are more likely to want more education for their children when they believe that future job opportunities will be governed less by class origin or family background than by education and associated skills. Since this tends to be a consequence of development, it can help to explain falling fertility over time. Third, the children of the poor work at home and outside the home at an early age: for richer parents, children's work is not so vital to family welfare.

If children help to support their parents in old age, the (low) current costs of raising children are a small price to pay. Where mothers command only low wages, the differences between children's and mothers' earnings may be small; work lost by the mother during a child's infancy may be easily recouped by the child later on. Finally, in poor countries much of women's traditional work—in agriculture, crafts and petty retailing—can be combined with looking after children.

The link between household poverty and high fertility is further reinforced by high rates of infant and child mortality; in poor families many births and the high probability of infant deaths go hand in hand. In the first place a mother who stops breastfeeding because her baby dies is biologically more likely to conceive another. Parents whose children die often try to replace them; and where high mortality is common, social norms

Figure 5.5 Influences on fertility



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(which respond only gradually to changes in mortality) tend to encourage "insurance" against the expected loss of children. On the other hand, high fertility contributes to high infant and child mortality: many births, especially if they are close together, can weaken both mother and children.

FAMILY PLANNING. The link between household poverty and high rates of childbearing is further cemented by the fact that the poor still have very limited access to modern and simple means of contraception. The contraceptives available are often expensive, particularly in relation to the incomes of the poor—and especially if they must be bought from private doctors. For a poor family, limiting the number of children may therefore mean sexual abstinence, illegal abortion, infanticide—or, at best, ineffective and difficult traditional contraception. In some circumstances, the psychological or financial costs of avoiding pregnancy may exceed the costs of having another child.

Family planning programs that are well designed and implemented may legitimize what relatives, friends, the community, the clan or village might otherwise have frowned upon. These social norms are often influential. Recent evidence indicates that declining fertility in 19th century Europe was not associated with economic factors in any consistent way. But it did follow a similar pattern across regions defined by a common language or culture—implying that the idea of limiting family size can affect fertility independently of specific economic change.

The same tendency can be seen today: even taking income and education differences into account, there are national and regional differences in fertility (Figure 5.4) that appear largely the product of cultural or religious differences. But culture never seems to have been an impenetrable barrier to fertility change. Once a high enough level of development has been reached, fertility has fallen without exception. Where there was a strong religious or cultural resistance to contraception, as in Ireland, fertility fell through delays in the age at marriage and an increase in lifelong celibacy, rather than through family planning.

AGE AT MARRIAGE. Recent declines in birth rates partly reflect rising age of marriage among women. This has lowered the rate of population growth by lengthening the interval between generations, by shortening the period during which women are likely to have babies, and perhaps by giving women other interests beyond family and childbearing to take with them into married life.

Like marital fertility, age at marriage is strongly affected by social and economic conditions, including women's education and employment opportunities. The average age at marriage (corrected for the proportion of women who never marry) is 22 in the middle-income countries of Latin America and in Malaysia, Singapore and South Korea; but it is less than 20 (sometimes much less) in many Sub-Saharan African countries and in Nepal, India, Pakistan and Bangladesh.

Later marriage as a mechanism of fertility reduction has been most important in Asia. In the 1960s in South Korea and Peninsular Malaysia, changes in the proportion of women married accounted for about half as much of the decline in the crude birth rate as did changes in marital fertility—and were more important than marital fertility declines in Sri Lanka and the Philippines. China has placed great stress on delaying marriage in its program to reduce population growth.

In Latin America, later marriage has been a less important ingredient of declining fertility. This has been partly because average age at marriage was already high compared with Asia, partly because much of the fertility decline in such countries as Chile, Colombia and Costa Rica has been among older women, and partly because childbearing outside wedlock is more common. Fertility is generally high and age at marriage low throughout Africa and the Middle East.

Population policy and family planning programs

Lower fertility is not an end in itself, but one among several ways of improving human welfare. Nor are the benefits of family planning simply economic. Relatively few couples, even among the poor, want as many children as their natural fertility would allow—witness the hospitalization rates due to self-induced abortion in Latin America, and scattered evidence that some parents do not always do all they might to avoid infant deaths, particularly of daughters. Poor women are particularly helped by family planning services; so are children, who can benefit from a smaller family.

The case for the public provision of family planning services, and ensuring that the poor have access to them, is gradually becoming less controversial. Some 35 developing countries, with 78 percent of the developing world's people, have an official policy to reduce population growth. An additional 14 percent of the developing world's population lives in countries where family planning is supported for reasons of health and welfare—including the health benefits that come from fewer children.

Some countries have had striking

successes. In Thailand contraceptive use increased from 11 to 35 percent of rural married women between 1968 and 1975, and from 33 to 49 percent of urban married women. In Indonesia the government expanded its service in 1974 from a clinic-based approach, to one based in villages. It currently has 3,500 clinics, 25,000 village depots and 40,000 village family planning groups. The proportion of married women using modern contraceptives increased from 7.4 percent in 1974 to 18 percent in 1977; it was 0.2 percent in 1970.

Nor need a population policy be confined to the support of family planning programs. A few countries—most notably Singapore—have used tax and housing policies to discourage large families. Direct payments for sterilization have been an important part of the Indian program. China, which for several years has emphasized that later marriage and small families are patriotic, recently announced bonuses and preferences for one-child families, and tax and housing penalties for families with more than two children. Raising the legal minimum age at marriage (the median among all countries is still only 15) might also help, although efforts to date have not been particularly successful (with the possible exception of China).

IMPROVING ACCESS TO CONTRACEPTION. Before 1960 family planning services were provided largely by voluntary associations. Most programs were small and offered services through health centers and private clinics, promoting simple barrier methods (foam, condoms and diaphragms) and rhythm. In the 1960s oral contraceptives and the intrauterine device (IUD) became available—and sterilization and legal induced abortions became more common. These required clinical support and well-trained practitioners, making programs heavily dependent on the health system.

This has caused difficulties for many countries where medical facilities and personnel are too limited to provide adequate family planning coverage. But if they operate within the framework of the health service, middle-level health staff and people specially trained in family planning have proved effective substitutes for medical specialists. In Thailand and South Korea the use of paramedical personnel for screening patients and supplying contraceptive pills led to increased acceptance of these pills. Family planning aides in Pakistan and Bangladesh have learned to insert IUDs, and in India to carry out menstrual regulation (inducing abortion of possible but unconfirmed pregnancies at an early stage). On a trial basis, they have been trained to perform sterilization.

Separate family planning services have not been so successful. The *ad hoc* systems (in Pakistan, for example) have at times involved ambitious programs of regular home visits to persuade people to plan their families, and to supply contraceptives. But without a satisfactory health network, it may be difficult to supervise the staff and provide more specialized advice or assistance to the few people who develop complications.

A promising alternative approach is to use other administrative networks. From time to time, India has had government personnel, such as teachers and tax collectors, recruiting people for sterilization—although this became unpopular through abuse. The successful family planning program in Indonesia (see box on page 80) has taken advantage of strong community organizations and made extensive use of village workers, with clinics to which people can be referred for further help.

Several countries have greatly increased the number of places where pills and condoms can be bought, often at subsidized rates. But simple and safe barrier methods (condoms, diaphragms and spermicides) are still neglected in many developing countries despite their renewed popularity in developed countries. Their use could sensibly be encouraged; research into ways of making them more practical in developing country settings is needed (see box).

FUTURE PRIORITIES. Progress in reducing fertility will partly depend on increasing the demand for contraception—primarily through social and economic development that successfully reaches the poor, but also through the growing understanding that fertility is a matter of individual choice. It will also depend on providing effective family planning services. Both will be facilitated if contraceptives can be made more convenient and less prone to complications that need medical attention. And the importance of political commitment to a population policy should not be underestimated. Countries with a dual concern for social and economic advance and for family planning will be able to cut fertility rates substantially in the rest of this century, and beyond.

The seamless web

Chapter 4 stressed that education, health, nutrition and fertility significantly affect the incomes of the poor. This chapter has considered separately each of these main areas of human development, with special emphasis on the causes of change and the policies that can bring it about. But it is worth reiterating that the different elements of human development are key determinants of each other.

Contraceptive technology

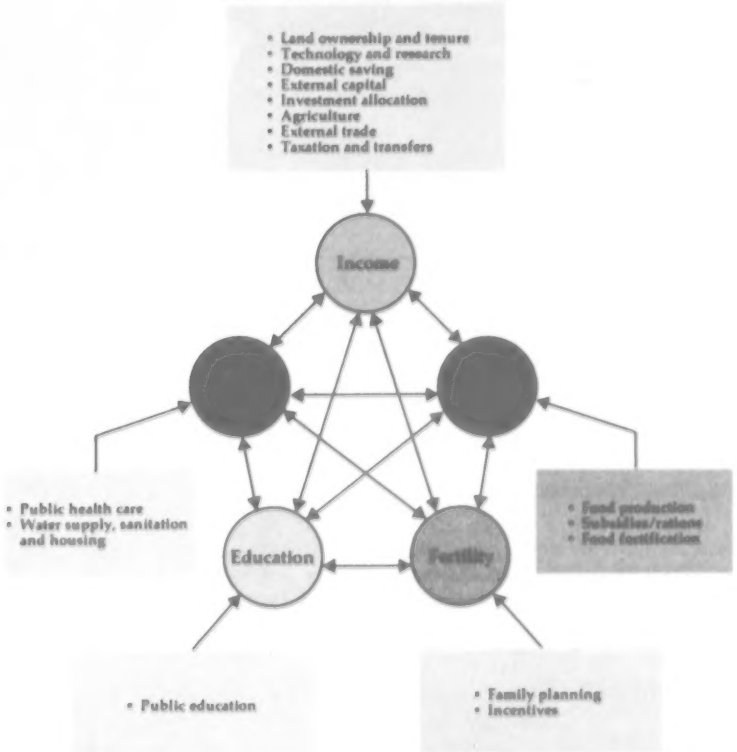
Of the people who use some form of birth control (about two-thirds of them in developed and one-third in developing nations), roughly one-third are sterilized, about 20 percent use the pill, 15 percent the intrauterine device (IUD) and 13 percent the condom. Most of the remaining 19 percent use rhythm, abstinence, the diaphragm, contraceptive injections (which last one to three months), various types of spermicide and such traditional methods as withdrawal, postcoital douching and deliberate reliance on the antifertility action of breastfeeding. Though there is evidence of widespread illegal and self-induced abortion, safe and legal abortion is available in only a few countries, and publicly provided in even fewer.

The amounts spent on research in reproductive sciences and contraception have been small—less than 2 percent of total government spending on medical research in the mid-1970s. And public spending on applied contraceptive research has fallen as much as 50 percent since then. The (smaller) amount spent by pharmaceutical firms has probably also fallen, apparently because new methods are not expected to be profitable. Unless more is spent, new technologies—vaccines, menses-inducing drugs, pharmacologic methods for men, and much improved barrier contraceptives—though technically within reach, are unlikely to be developed or tested for many years.

Applied contraceptive research is still largely directed at female contraceptives (about nine times more was spent on female than on male methods in 1978), partly because basic research on the female reproductive system has been more successful. It is also geared almost exclusively to the search for new hormonal, drug-based and surgical procedures: more than $10 million was spent on these in both 1977 and 1978. In contrast, spending on the simpler barrier methods was less than $500,000—despite their potential for improvement (a biodegradable condom or a standardized plastic-based diaphragm, for example).

Present barrier methods are generally viewed as too ineffective and inconvenient for widespread use in developing countries—where sanitary conditions are poor, privacy is less, husband-wife communications are more formal and abortion as a backup is more difficult to obtain. In the United States, however, use of the pill is falling, that of the diaphragm increasing; consumer concern over the side-effects of both the pill and IUD has increased. Whether such concerns are well-founded—and on this there is no consensus—they are bound to spread to developing countries. In the 1980s the efforts to extend services to more people may have to be complemented by a wider choice of methods.

Figure 5.6 Policy and poverty



The seamless web of interrelations constitutes the core of Figure 5.6; feeding into this core are the various areas in which policy affects poverty. The diagram is illustrative, and the policies shown are not the only determinants of poverty or of human development. As has been stressed, climate, culture, religion and natural resources all shape the environment in which development takes place and influence the choice of policies. So do political realities, administrative constraints and the world economy.

Some of the links are simply common sense: it is not surprising that the incomes of the poor significantly affect their health, education, nutrition and fertility. Poor people cannot afford decent food and health care; they are more likely to need their children's meager earnings (or help in the household and fields) so that the children cannot go to school. And they feel more need to have large families to support them during

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old age and disability. Average national income is obviously also significant, especially since it affects the tax base and hence the government's ability to finance human development programs.

Some influences are less familiar. The effects of primary education have been stressed above in numerous contexts. For example, parents with a primary education are more likely to learn about (and be willing to try) improved health, hygiene and nutrition practices, thus reducing the chances that their children will become ill or malnourished. Educated people are more likely to have lower fertility: they more readily see the disadvantages of having too many children to feed and educate; they have more alternative sources of interest and satisfaction that compete with children for time and money; they are generally more willing to accept new ideas, such as the use of modern contraceptives, and to seek family planning advice. Because of the mother's preeminent role in bearing and raising children, it is not surprising that her level of education is more important than the father's.

Health and nutrition both affect whether children can attend school regularly enough to finish the primary years, and whether they have the mental and physical energy to learn. Malnutrition and disease have been found to be closely connected, each increasing the likelihood and severity of the other—with death often the end result. Better health plays a key role in the demographic transition to lower fertility: when the odds are greater that children will survive to support their parents in old age or disability, parents tend to have fewer children. Although it is possible (though not firmly established) that better nutrition may increase natural fecundity, its effects on the health, education and incomes of the poor all contribute indirectly to reduced fertility.

Lower fertility itself affects the other aspects of poverty. The spread and quality of education increases —because both the state and parents can afford to spend more on each child when there are fewer of them. Large families have higher infant and child death rates and a higher incidence of malnutrition—there is simply less food, money and time for each child.

It is also important to take a long view. Although a certain amount can be done with crash programs such as vaccination campaigns and adult literacy programs, sustained human development is usually a slow process. In general, a country's level of health, education, nutrition or fertility at any given time largely reflects its level 10, 20 or even 50 years earlier. At any given level of family income, children are more likely to go to primary school if their parents have also done so; and because the home environment encourages learning, particularly in the preschool years, they are likely to do better in school as well.

Human development is thus transmitted from generation to generation in a virtuous circle; but equally, there is a vicious circle that sentences the children of deprived parents to deprivation themselves. Breaking out of the vicious circle into the virtuous one is the essence of human development.

6 Implementing human development programs: some practical lessons

This chapter concentrates on four key questions that invariably affect the way human development programs are organized, and how effective they are.

- Political support. This has been critical to the considerable success of human development programs in reaching the poor. Its absence also helps to explain some of the failures.
- Finance. Money alone will not produce human development. But a shortage of funds is a common, often binding constraint. So methods that reduce unit costs or raise new revenues have a considerable role to play in expanding services.
- Administration. For many programs, administrative and institutional capacities may be even scarcer than finance. Yet project experience shows that their importance is frequently overlooked.
- Demand. The way families and individuals respond to services is crucial to improving health, hygiene and nutrition; to whether children from poor families go to school or have to work instead; and to reducing fertility.

These four factors—like education, health, nutrition and fertility—are closely interlinked. For instance, financial and administrative constraints can be eased by political support, which in turn will be stronger if programs can be made less costly or administered more readily, or if there is a heavy demand for them. The links, though, are not all complementary: for example, paramedical workers have lower salaries than doctors, but they need more supervision.

Human development needs political support

Political support for human development cannot be taken for granted. The poor frequently are politically weak. They are often too sick, uneducated, geographically dispersed and busy to be politically active. Influential elites, particularly large landowners, may oppose human development programs if they feel that their power and status might be undermined. They might feel, for example, that educated children are less likely to settle for working in serf-like conditions on haciendas or plantations.

Even if there is no direct opposition, the extent and form of human development programs will generally be influenced by keen political competition for limited tax revenues. Because policymakers generally live in urban areas, as do the most politically active of the people who benefit from public services, these programs tend to suffer from urban bias (though reductions in urban social expenditures do not necessarily lead to increases in rural expenditures). But the health and education facilities available even to urban elites in poor countries are generally inferior to those available to the middle class in rich countries. A major political challenge of the 1980s will be to adapt and extend programs to the poor, particularly those in rural areas.

Despite the difficulties, it has usually been easier to obtain political support for health and education programs that benefit the poor—witness the large increases in school enrollment and life expectancy—than for policies of, say, land or tax reform. Why? Largely because, unlike land reform or increased taxation, more knowledge, health and vitality for the poor are not obtained by reducing them for someone else. Of course, such programs must be financed. The rich may have to pay more in taxes than they get in direct benefits. But they are often prepared to support human development, in part because it has a legitimacy that transcends culture, religion, ideology and class. This is particularly true if poor children are involved. The idea that all children should have a fair start—without the handicaps of disease, illiteracy and malnutrition—is widespread.

In some circumstances, moreover, everyone gains. Those who are not poor will benefit if endemic diseases are eradicated—prevention usually being cheaper than cure. Malaria control is an obvious example: the main beneficiaries are the rural poor, who are most likely to be infected. But mosquitoes that bite the infected poor may